Industrial Computer Regulatory and Safety Agency Certifications White Paper

CE Marking

CE Marking is currently required for many products sold in Europe, yet many exporters are still unsure or unaware of what affect this has on their business. Bring your product up to CE standards with little effort.

The European Commission refers to the CE Marking of products as a "passport" which can allow a manufacturer to freely circulate their products within the European marketplace. The marking applies only to products regulated by European health, safety and environmental protection legislation (product directives) but this is estimated to include more than 50% of the goods currently exported from the U.S. to Europe.

The actual CE Marking is the letters "CE" which a manufacturer affixes to certain products for access to the European market (consisting of 18 countries and also referred to as the European Economic Area or EEA). The letters "CE' are an abbreviation of a French phrase "Conformite Europeene". The marking indicates that the manufacturer has conformed with all the obligations required by the legislation. Initially, the phrase was "CE Mark": however, "CE Marking" was legislated as its replacement in 1993.

CSA International

All GR-63, GR-487 and ETSI physical requirements can now be performed and expanded capabilities now include full testing for both the seismic and fire resistance requirements. NTS is further partnered to allow their test data and reports to be accepted by RBOCs and CLECs that require NRTL status.

NEBS testing is required for anyone supplying equipment to the Regional Bell Operating Companies (RBOCs) and the Competitive Local Exchange Carriers (CLECs). Any NTS partners are NVLAP approved and FCC listed.

System (NEBS) Requirements:

- Physical Protection
- EMC & Electrical Safety
- GR-1089-CORE for EMC, Surge Standards and Electrical Safety
- Pre-compliance
- ESD Testing
- FCC-Part 15, 18 & 68 Telecom
- EMC Emissions & Immunity (10kHz to 10 GHz)
- Electrical Safety/Grounding and Compliance
- Lightning and AC Power Fault Exposure (2nd Level)

- Consulting for Telecom, EMC and Product Safety
- CE Mark/FCC
- Bonding and Grounding
- First and Second Level Lightning Surge Testing

Physical Testing

GR-63-CORE Physical Protection Standards

- Complete Physical Testing
- Temperature, Humidity and Altitude
- High & Low Temperature Exposure and Thermal Shock
- Fire Resistance (Spread) and Heat Dissipation
- Smoke Corrosivity
- Earthquake Vibration/Resistance
- Office Vibration
- Airborne Contaminants
- Transportation Vibration
- Acoustic Noise
- Illumination
- Thermal Operating Conditions
- Handling Drop Tests

European Norms Electrical Certification

ENEC is a CENELEC certification scheme for a common European mark of conformity for certain products (luminaires, components and office & data equipment) which comply with European Standards. The ENEC mark is a common European safety certification mark, based on testing to harmonised European safety standards for European manufacturers. However at the March ’98 CCA meeting in Slovenia it was agreed that the ‘ENEC’ mark, the use of which had previously been restricted to European manufacturers only, would now be opened to manufacturers worldwide. Initially this relaxation of the rules will only apply to IT equipment (EN 60950), but it is anticipated that other product sectors falling within the ENEC scope will inevitably follow suit. Currently the ‘ENEC’ mark scope includes:

- Information
- Technology Equipment (EN 60950)
- Transformers (EN 60742, EN 61558)
- Luminaires (EN 60598) and associated components (eg EN 60920, EN 60400)
- Appliance switches (EN 61058)

It stands for ‘European Norms Electrical Certification’ – the number shown to the right of the mark merely identifying the CCA member, (17 in the case of Nemko). Nemko’s mark may be added, if the manufacturer so wishes. ENEC indicates to both consumers, authorities and others concerned that the product is certified by a highly recognized third-party. In short, this entails:

- Testing and certification by an ENEC member certification body, such as NTS
- The manufacturer’s production control must satisfy ISO 9002, or equivalent

- Initial and minimum annual production surveillance audits by the certification body, based on harmonized inspection procedures
- Selected re-testing of certified products every second year

The mark has had remarkable success. About 5000 ENEC licenses have been issued to date, representing 15,000 different products on the European market.

The UL Mark on a product means that UL has tested and evaluated representative samples of that product and determined that they meet UL's requirements. In addition, products are periodically checked by UL at the manufacturing facility to make sure they continue to meet UL requirements. A full range of UL testing services is offered to comply with all UL requirements.

FCC Emissions Requirements

There are two levels of required compliance; home/office and industrial. No piece of equipment with a computer installed can be sold in the US unless it has been properly tested for compliance with the appropriate FCC regulations. There are strict laws and high fines associated with these laws. Each piece of computing equipment must be properly labeled to show it is in compliance.

FCC Part 15, Subpart J, Class A covers industrial computers. Class B covers home and office computers.

An industrial computer is intended for use in a non-home and non-office environment and can be identified by either form factor being incompatible with home use or a price that would not be identified with the home market. Class A would apply to industrial computers.

A home or office computer is your typical clone computer manufactured by HP, Apple, Microsoft, Dell, or the myriad little local computer resellers. Class B would apply here.

Class A simply requires the subject equipment be tested to verify the emissions are below the published requirements. The equipment vendor must assure the equipment passes these tests. The results of the tests do not need to be submitted to the FCC and can be simply kept in a file so that if there is a problem, they can be shown to the FCC to demonstrate the equipment was tested and was compliant at some time in the past.

Class B is more rigorous with a lower ceiling on the test limits. Class B requires the test results be sent to the FCC along with an application for issuance of a registration number. The FCC may accept the results of the testing lab or they may require the equipment be submitted to them for additional testing.

Testing to Class A is a fairly simple procedure requiring one day or less in a test facility and should cost under $1000.

An `approved' chassis can be populated with any tested and compliant boards and still be in compliance. That is, each shippable configuration does not need to be tested as long as all the parts have been tested at some time in the past.

Performance Requirements and Objectives:

Electrical Criteria

- Bond Clamp Retention
- AC Fault Test

Mechanical Criteria

- Cable Clamping
- Sheath Retention
- Cable Flexing
- Cable Torsion
- Vertical Drop
- Compression
- Impact
- Central Membrane (CM) Protrusion

Environmental Criteria

- Accelerated Thermal Aging
- Assembly
- Temperature and Humidity
- Freeze/Thaw
- Weather Tightness
- Water Resistance
- Corrosion Resistance
- Chemical Resistance
- Insect Resistance
- Ultraviolet Resistance
- Brush Fire Resistance

Conditional Requirements

- Bullet Resistance
- Cable Core Blocking Ability

About Arista

Founded in 1994 and headquartered in Fremont, CA, with operations in China, India and Taiwan. Arista Corporation is committed to the highest standards of product development, engineering, manufacturing and customer support. Our extensive product portfolio includes Industrial Panel PCs, Industrial Monitors, Box PCs & Fanless Embedded Computers, Rack Mount Computers, ACP ThinManager Ready Thin Clients, Embedded CPU Boards and Video Extender/Switches.

Market Focus

We provide off-the-shelf, full turnkey integration services, and custom ODM/OEM design and development services for the Industrial Automation, Food & Beverage, Pharmaceutical, Oil & Gas, Waste Water Management, and Control Room marketplaces. Our ODM/OEM capabilities help our customers meet exacting specifications and requirements at an affordable price and quick time to market in harsh operating environments.

Manufacturing & Support Capabilities

All of our products are assembled and tested in our ISO 9001: 2008 facility in Fremont, CA, undergoing stringent quality oversight enabling Arista Corporation to provide a two (2) year depot warranty for all computer products and three (3) year depot warranty for all display products. We work on the embedded long roadmap enabling 5+ years continuity of supply and support, complemented by a comprehensive stringent revision control process.

RoHS Compliance

The European Union adopted Directive 2002/95/EC in February 2003 that restricts and prohibits the use of heavy metals (lead, mercury, cadmium, and hexavalent chromium), polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE) in new electrical and electronic equipment shipped after July 1, 2006. All new products under development at Arista Corporation meet the directive's requirements.

Conflict Minerals Sourcing Policy

Conflict minerals (columbite-tantalite, cassiterite, wolframite and gold, or their derivatives, including tantalum, tin and tungsten) originating from Democratic Republic of the Congo (DRC) are sometimes mined and sold by armed groups to finance conflict characterized by extreme levels of violence. Some of these minerals and the metals created from them can make their way into the supply chains of the products used around the world, including those in the electronics industry.

It is the policy of Arista to avoid Conflict Minerals that directly or indirectly finance or benefit armed groups in conflict affected regions. Arista is committed to sourcing components and materials from companies that share our values around human rights, ethics and environmental responsibility.

Arista expects its suppliers to commit to the EICC Code of Conduct which includes a provision related to the responsible sourcing of minerals. Pursuant to that Code of Conduct, suppliers must have a policy to reasonably assure that tantalum, tin, tungsten and gold in the products they manufacture are DRC conflict free. Arista will immediately discontinue engagement with suppliers who pose any risk supporting conflict minerals.

Our Core Values

In a continuous pursuit of excellence, our core values include Innovation, Reliability, Agility, Integrity and Trust. ‘Talk to us. We listen.’ We listen to our customers. We then apply creativity, technology, engineering and manufacturing expertise to provide the optimum solution. We listen so we can

continuously improve our products, processes and services. We listen because our objective is to work in partnership with our customers to establish a long term successful relationship...

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