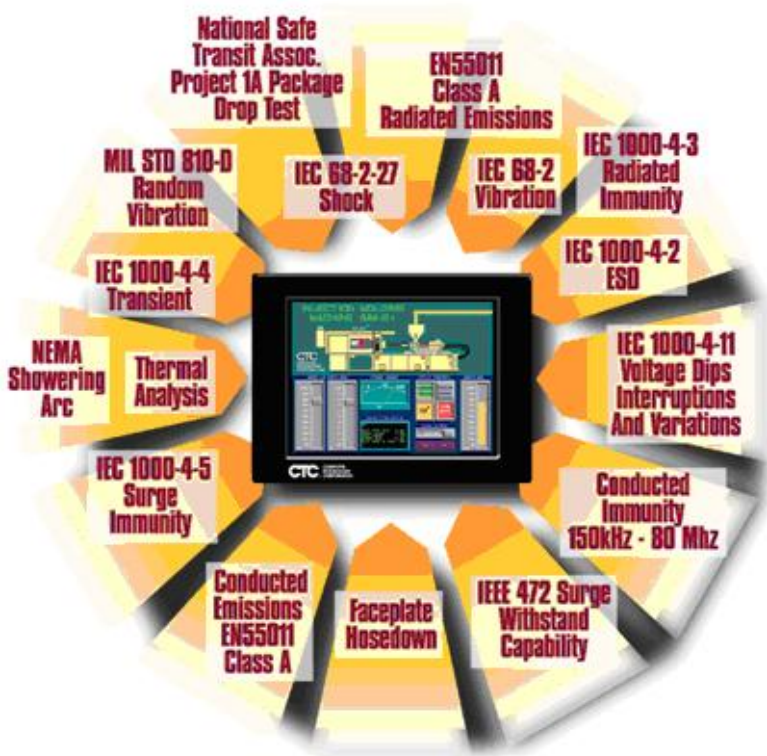


We Test Because You Invest!

Industrial PCs

PA, PC, EPC, HPC



Tested For The Factory Floor

- Qualified Component Selection
- Supplier Certification
- Continuous Design Reviews
- Internal Independent Product Testing
- The Highest Quality You Can Get On The Market

Electro Magnetic Compatibility (EMC) Testing

Emissions

EN55011 CISPR 11 RADIATED EMISSIONS GROUP 1 CLASS A

Limits and methods of measurement of electromagnetic disturbance characteristics of industrial, scientific, and medical (ISM) radio-frequency equipment, Second Edition 1990-09. Phase and Neutral emissions tested throughout frequency range of 30 MHz to 1 GHz in both horizontal and vertical polarizations.

EN55011 CISPR 11 CONDUCTED EMISSIONS GROUP 1 EQUIPMENT

EMI receiver scanned the frequency range from 150 kHz to 30 MHz using a bandwidth of 10 kHz and a peak detector. Worst case emissions verified below quasi-peak limit plus error of 73 dB μ V.

Immunity

IEC 1000-4-3 RADIATED IMMUNITY

Tested to a radiated electromagnetic field of 10 V/m in the frequency band of 80 MHz to 1GHz as defined in severity Class 3 (Severe electromagnetic radiation environments, such as levels typical of high power transceivers in close proximity to the control equipment.) Applied signal was amplitude modulated with a 10 kHz signal at 80% modulation depth with a sweep frequency no faster than 1.5×10^{-3} decades/second. Radiating and receiving antennas were oriented in both horizontal and vertical polarizations.

IEC 1000-4-2 ELECTROSTATIC DISCHARGE

Test fixture equipped with human body model 150 Ω 150 pf discharge network. Tests conducted in both air and contact discharge modes to severity level 4 of IEC standard (8kV contact discharge / 15 kV air discharge) to both the CTC Industrial PC and vertical and horizontal coupling planes a minimum of 10 times per test point.

IEC 1000-4-4 FAST TRANSIENT/BURST SUSCEPTIBILITY

Level 4 Severe Industrial Environment defined as:

- No fast transient suppression in the control and power circuits which are switched by relays and contactors
- No separation of the industrial circuits from other circuits associated with environments belonging to higher severity levels
- Use of multicore cables in common for control and signal lines
- No separation between power supply, control, signal and communication cables

Test parameters: 5 kHz for output < 2.0 kV, 2.5 kHz for output > 2.0 kV. Burst duration: 15 ms. Burst Period: 300 ms. Test time: 99 s. Test voltage on power supply 4 kV (5 ns rise time) on I/O), communication lines 2 kV (5 ns rise time). Test applied in both negative and positive polarity to Line, Neutral, Line and Neutral, Ground and communication ports.

IEC 1000-4-5 SURGE IMMUNITY

Class 3 defined as:

- Installation is earthed to the common earthing system of the power installation which can be essentially subjected to interference voltages generated by the installation itself or by lightning
- Current due to earth faults, switching operations and lightning in the power installation may generate interference voltages with relatively high amplitudes in the earthing system
- Protected electronic equipment and less sensitive electric equipment are connected to the power supply network

Test parameters: Surge 2 kV Open Circuit Voltage; Front time = 1.2 μ s; Time to half = 50 μ s. Surge applied between each input power phases and ground and from the I/O cable to shield to ground in both positive and negative surges. The surges were synchronized with the power input phase at 0°. The time between each surge was at least 1 min.

IEC 1000-4-11 VOLTAGE DIPS INTERRUPTIONS AND VARIATION DIPS

30% dip for 10 ms (1/2 cycle) unit must experience no abnormal operation 60% dip for 100 ms (5 cycles). Unit must power off and on with no abnormal operation.

Interruptions > 95% input power interruption for 5 seconds. Unit must power off and on with no abnormal operation.

Variation (brownout and high line)

Procedure 1: Voltage dip of 10% applied for 15 minutes – no abnormal operation

Procedure 2: Voltage increase of 10% applied for 15 minutes – no abnormal operation.

CONDUCTED IMMUNITY

All interconnecting cables on the CTC Industrial PC tested for immunity to conducted radio frequencies in the range 150 kHz to 80 MHz at a level of 124 dB μ V with an amplitude modulation at 80% by a 1 kHz tone.

IEEE 472 SURGE WITHSTAND CAPABILITY

Test Parameters: To 3.5 kV continuous burst for at least 1 min. on all power conductors in both Common and Transverse modes.

NEMA SHOWERING ARC

Test Parameter: Continuous broadband noise generator that generates 1.5 kV waveform that is applied to power input and communication lines.

Mechanical / Packaging Testing

Vibration

Random Input

Frequency range from 5 to 500 Hz at 0.5 grms input. This is an operational test for rotating media (i.e. Hard Drive units). Vibration is applied in each orthogonal axis for a duration of 1 hour. CompactFlash units are tested at 1grms in the same frequency range – 5 to 500 Hz.

MIL-STD-810D METHOD 514.3 RANDOM VIBRATION TRANSPORTATION TEST

Test Parameters: 10 to 500 Hz at the following levels:

10 Hz 0.015 (G²/Hz)

40 Hz 0.015 (G²/Hz)

500 Hz 0.00015 (G²/Hz)

The random vibration is applied to the unit in each of the three orthogonal axes for the duration of 1 hour and simulates 1000 miles of transport.

Shock

IEC 68-2-27 HALF SINE SHOCK TEST

Test Parameters:

Operating – 10.0 G, 11 ms duration

Non-operating – 30.0 G, 11 ms duration

Three pulses applied in both the positive and negative directions for each of the three orthogonal axes.

NATIONAL SAFE TRANSIT ASSOCIATION PROJECT 1A PACKAGED DROP TEST

Packaged products that weigh between 21 to 40.99 pounds are dropped from a height of 24 inches. No damage to the product may result and the shipping container must still afford reasonable protection to the contents.

Environmental

Temperature

Thorough thermal analysis is performed on the design of each of the CTC Industrial PC products to verify manufacturers' recommended operating temperatures are not exceeded. CTC follows a standard derating guideline.

Temperature/Humidity

CTC Hardware is submitted for temperature/humidity duration test at a local test facility (Environmental Screening Services Corporation). Test Parameters: duration 10 days, temperature 0° to 50° C, humidity level 95% non-condensing.

NEMA 4/4X

Each CTC Industrial PC faceplate design is tested to ensure a tight seal is maintained for NEMA hose down environments. A high-pressure hose is used to spray water directly on the faceplate of the unit. Each edge of the unit including outside and inside edges are subjected to the high-pressure water stream from a distance of 6 inches for the duration of 4 minutes.

Chemical Resistance

The faceplate of the CTC Industrial PC can resist with no visible effect, the following chemicals
It is not recommended that these chemicals be applied for long periods of time or in excess quantity.

Acetic Acid 10%	Grease	Salad Oil
Acetone	Hexane	Silicone
Ammonia Water 10%	Hydrochloric Acid 10%	Silicone Grease G31
Butyl Cellosolve	Isopropyl Alcohol	Silicone Oil
Carbon Tetrachloride	Kerosene	Sodium Chloride 26%
Cleanser	Machine Oil	Sodium Hydroxide 10%
Cottonseed Oil	MEK	Sulfuric Acid 10%
Cyclohexanone	Methanol	Toluene
Engine Oil	Methylene Chloride	Trichloroethylene
Ethanol	Motor Oil	Xylene
Gas Oil	Nitric Acid 10%	Zinc Chloride 81%
Gasoline	Phosphoric Acid	
Glycerin	Potassium Hydroxide	

The CTC Advantage

At CTC Parker, we take pride in delivering quality hardware solutions that you can count on to operate 24 hours a day – regardless of harsh factory floor environments. As a single-source supplier of both hardware and software, we are able to simplify integration, support and training for users. Our software and hardware are tested under the same roof, giving you the best possible system performance with the highest level of reliability. In fact, our units are thoroughly tested, meeting the challenge of passing more tests in one day than most other units see in lifetime.

CTC-Europe

The European Distributor Channel for CTC-Parker

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