EMC Acronyms and Definitions

AF - Antenna Factor

The ratio of the received field strength to the voltage appearing at the terminals of a receiving antenna OR the ratio of the transmitted field strength at a specified distance to the voltage applied to the terminals of a transmitting antenna. Antenna factors are functions of position and frequency.

AM - Amplitude Modulation

A technique for putting information on a sinusoidal "carrier" signal by varying the amplitude of the carrier.

ALSE - Absorber-Lined Shielded Environment

An EMC test environment consisting of a shielded room with material on the walls and ceiling that absorbs electromagnetic radiation.

ANSI - American National Standards Institute

ANSI (http://www.ansi.org/) is an organization that sponsors and supports various standards including the EMC radiated emissions test standard, ANSI C63.4.

APLAC - Asian Pacific Laboratory Accreditation Cooperation

APLAC (http://www.aplac.org/) is a cooperation of accreditation bodies in the Asia Pacific region that accredit laboratories, inspection bodies and reference material producers.

BCI - Bulk Current Injection

A type of EMC test where common-mode currents are induced on the power and communications cables of the device under test.

CDM - Charged Device Model

A model for electrostatic discharge sources. In its most basic form, it consists of a charged capacitor, resistor and a switch in series. The charged device model is an alternative to the human body model (HBM), which is similar but with generally higher resistance.

CE - Conducted Emissions

The energy generated by a circuit or equipment which is conducted on wires and cables.

CENELEC - Comité Européen de Normalisation Electrotechnique

In English, the name of this committee is the "European Committee for Electrotechnical Standardization".CENELEC (http://www.cenelec.eu/)'s mission is to prepare voluntary electrotechnical standards (including EMC standards) that help develop the Single European Market/European Economic Area for electrical and electronic goods and services removing barriers to trade, creating new markets and cutting compliance costs.

CI - Conducted Immunity

A term used to describe EMC tests where energy is directly coupled onto cables and wires. These tests are used to determine the ability of equipment or circuits to withstand or reject electrical noise. CI and CS describe similar tests, but CI is typically used in commercial EMC testing.

CISPR - Committee on Special International Committee on Radio Interference

CISPR (http://www.iec.ch/emc/iec_emc/iec_emc_players_cispr.htm) is an international organization concerned with developing standards for detecting, measuring and comparing electromagnetic interference in electric devices.

CS - Conducted Susceptibility

A term used to describe EMC tests where energy is directly coupled onto cables and wires. These tests are used to determine the ability of equipment or circuits to withstand or reject electrical noise. CS and CI describe similar tests, but CS is typically used in military and aerospace testing.

CSA - Canadian Standards Association

The Canadian Standards Association (http://www.csa.ca/Default.asp?language=english) is a not-for-profit membership-based association serving business, industry, government and consumers in Canada and the global marketplace.

CW - Continuous Wave

A sinusoidal waveform with a constant amplitude and frequency.

DPI - Direct Power Injection

A type of conducted immunity test where a continuous wave signal is injected directly onto a cable or component pin (usually through a capacitor). The strength of the signal is determined by a forward power measurement.

DUT - Device Under Test

The device being evaluated by an EMC test (see also EUT).

EEE or E^3 - Electromagnetic Environmental Effects

The impact of the electromagnetic environment upon the operational capability of military forces, equipment, systems, and platforms. It encompasses all electromagnetic disciplines, including electromagnetic compatibility/electromagnetic interference; electromagnetic vulnerability; electromagnetic pulse; electronic protection, hazards of electromagnetic radiation to personnel, ordnance, and volatile materials; and natural phenomena effects of lightning.

EMC - Electromagnetic Compatibility

The ability of an electronic device or system to function without error in its intended electromagnetic environment.

EMD - Electromagnetic Disturbance

Any electromagnetic phenomenon that may interfere with the normal function of an electronic device.

EMI - Electromagnetic Interference

The disruption of an electronic device or system due to an electromagnetic interaction.

EMP - Electromagnetic Pulse

A strong electromagnetic transient such as that created by lightning or a nuclear blast.

ERP - Effective Radiated Power

The product of a transmitter power output and the antenna gain, taking into consideration any losses from the transmission line, connectors, couplers, etc.

ESA - Electrostatics Society of America

The ESA (http://www.electrostatics.org/) is a nonprofit professional society that is devoted to the advancement and improved understanding of electrostatics.

ESD - Electrostatic Discharge

A sudden surge in current usually due to an electric spark or dielectric breakdown characterized by risetimes less than one nanosecond and total pulse widths on the order of microseconds.

EUT - Equipment Under Test

The device being evaluated by an EMC test (see also DUT).

FCC - Federal Communications Commission

The FCC (http://www.fcc.gov/) is the agency that regulates unintentional electromagnetic emissions from commercial products sold in the United States.

FM - Frequency Modulation

A technique for putting information on a sinusoidal "carrier" signal by varying the frequency of the carrier.

HBM - Human Body Model

A model for electrostatic discharge sources. In its most basic form, it consists of a charged capacitor, resistor and a switch in series. The human body model is an alternative to the charged device model (CDM), which is similar but with generally lower resistance.

HEMP - High-altitude Electromagnetic Pulse

Strong electromagnetic transient field that is created by a nuclear device discharged high in the atmosphere (also sometimes referred to as NEMP or Nuclear Electromagnetic Pulse).

IBIS - Input/output Buffer Specification

IBIS (http://www.eigroup.org/ibis/default.htm) is a standard method for specifying the parameters of a semiconductor device's input and output pins for electrical modeling purposes.

IEC - International Electrotechnical Commission

The IEC (http://www.iec.ch/) is an international organization that prepares and publishes international standards (including many EMC standards) for all electrical, electronic and related technologies.

IEEE - Institute of Electrical and Electronics Engineers

IEEE (http://www.ieee.org/) is the world's leading professional association for the advancement of technology. The IEEE name was originally an acronym for the Institute of Electrical and Electronics Engineers, Inc. Today, the organization's scope of interest has expanded into so many related fields, that it is simply referred to by the letters I-E-E-E (pronounced Eye-triple-E). The IEEE EMC Society (http://www.emcs.org/) is the largest professional society in the field of electromagnetic compatibility.

IEMI - Intentional Electromagnetic Interference

Electromagnetic interference generated intentionally (for example to disable the electronic systems of an enemy or to prevent the proper operation of a device in the absence of legitimate control mechanisms).

iNARTE - International Association for Radio, Telecommunications and Electromagnetics

iNARTE (http://www.narte.org/) is a worldwide, non-profit, professional telecommunications association which certifies qualified engineers and technicians in the fields of Telecommunications, Electromagnetic Compatibility/Interference (EMC/EMI), Product Safety (PS), Electrostatic Discharge control (ESD) and Wireless Systems Installation.

ISO - International Organization for Standardization

ISO (http://www.iso.org/) is a network of the national standards institutes of 157 countries, one member per country, with a Central Secretariat in Geneva, Switzerland, that coordinates the system.

ISM - Industrial, Scientific and Medical equipment

A class of special purpose electronic devices that is generally exempt from the EMC requirements imposed on equipment that is likely to be found in the home or office.

ITE - Information Technology Equipment

A class of electronic devices referred to in many EMC standards encompassing a broad range of equipment including business machines, telecommunications equipment, and multi-media devices.

JEDEC - Joint Electron Device Engineering Council

The JEDEC Solid State Technology Association is a trade association and standardization body that represents the semiconductor electronics industry in the United States.

LISN - Line Impedance Stabilization Network

A passive, two-port network that is placed between the power supply and the power input of equipment under test. It passes power to the equipment while providing a known high-frequency impedance. Test equipment for measuring the voltage on the power supply lines is connected directly to the LISN.

NEMP - Nuclear Electromagnetic Pulse

Strong electromagnetic transient field that is created by a nuclear device discharged high in the atmosphere (more commonly referred to as HEMP or high-altitude Electromagnetic Pulse).

OATS - Open Area Test Site

An EMC test environment free of reflecting objects except a ground plane.

PLT - Power Line Transient

A sudden surge in the voltage on a power supply input.

PWM - Pulse Width Modulation

A common method of sending analog control signals where a signal voltage is switched on or off. The width of the transmitted pulses conveys the amplitude of the analog signal.

RES - Radiated Electromagnetic Susceptibility

EMC tests where an electronic device is subjected to strong radiated electromagnetic fields. These are usually modulated or unmodulated continuous wave (CW) fields. This term is generally synonymous with the term Radiated Immunity (RI).

RFI - Radio Frequency Interference

The disruption of an electronic device or system due to electromagnetic emissions at radio frequencies (usually a few kHz to a few GHz). This term was more common many years ago, but has largely been replaced by the more general expression, Electromagnetic Interference or EMI.

RE - Radiated Emissions

The energy generated by a circuit or equipment which is radiated directly from the circuits, chassis and/or cables of equipment.

RF - Radio Frequency

A frequency at which electromagnetic radiation of energy is useful for communications. Radio frequencies are designated as very low: 3 kHz to 30 kHz, low: 30 to 300 kHz, medium: 300 to 3,000 kHz, high: 3 to 30 MHz, very high: 30 to 300 MHz, ultrahigh: 300 to 3,000 MHz, super high: 3 to 30 GHz, and extremely high: 30 to 300 GHz.

RI - Radiated Immunity

A term used to describe EMC tests where energy is coupled to the product by radiated (or field-coupled) means. These tests are used to determine the ability of equipment or circuits to withstand or reject electrical noise. RI and RS describe similar tests, but RI is typically used in commercial EMC testing.

RS - Radiated Susceptibility

A term used to describe EMC tests where energy is coupled to the product by radiated (or field-coupled) means. These tests are used to determine the ability of equipment or circuits to withstand or reject electrical noise. RS and RI describe similar tests, but RS is typically used in military and aerospace testing.

SerDes - Serializer/Deserializer

A transceiver that converts parallel digital data to serial digital data and vice-versa for high-speed data communication.

SSO - Simultaneous Switching Output noise

SSO noise (also SSN) is the voltage fluctuation that occurs on an electronic device's power bus due to rapid changes in the current drawn by the device. These power bus fluctuations may also appear on signal outputs referenced to that power bus.

TEM - Transverse ElectroMagnetic

An electromagnetic plane wave where the electric and magnetic fields are perpendicular to each other everywhere and both fields are perpendicular to the direction of propagation. TEM cells are often used to generate TEM waves for radiated immunity (RI) testing.

VCCI - Voluntary Control Council for Interference

Unintentional electromagnetic emissions control in Japan is performed on a voluntary basis, under the supervision of the Voluntary Control Council for Interference (VCCI (https://www.vcci.jp/vcci_e/)).

VSWR - Voltage Standing Wave Ratio

A measure of the degree to which a load is impedance matched to its transmission line that is determined by dividing the voltage at the peak of a standing wave by the voltage at the null in the standing wave.

XTALK - Crosstalk

A measure of the electromagnetic coupling from one circuit to another.
