

STANDARDS

Compliance with standards makes or breaks the marketing of any new product. This section recaps new and revised national and international EMC standards. The information below has been featured in our weekly *Interference Technology eNews*. Just go to InterferenceTechnology.com, subscribe to the *eNews*, and you'll be updated on important changes in EMC standards weekly.

International Electrotechnical Commission (IEC)

EMC AND HEARING AIDS STANDARD

IEC 60118-13:2011 in principle covers all relevant EMC phenomena for hearing aids. Hearing aid immunity to high frequency electromagnetic fields originating from digital wireless devices operating in the frequency ranges 0.8 GHz to 0.96 GHz and 1.4 GHz to 2.48 GHz is currently identified as the only relevant EMC phenomenon regarding hearing aids. Future editions of this part of IEC 60118 may add tests for other frequency bands, as they come into more common use. IEC 61000-4-3 is the basis for relevant EMC tests to be conducted on hearing aids. Measurement methods and acceptance levels are described in this part of IEC 60118. This third edition cancels and replaces the second edition published in 2004 and constitutes a technical revision. It introduces a new set of requirements for use of hearing aids with mobile phones.

HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR

Project IEC 62271-204 ed1.0, High-voltage switchgear and controlgear – Part 204: Rigid gas-insulated transmission lines for rated voltage above 52 kV, is an up to 3 months pre-release of the official publication.

This part of IEC 62271 applies to rigid HV gas-insulated transmission lines (GIL) in which the insulation is obtained, at least partly, by a non-corrosive insulating gas, other than air at atmospheric pressure, for alternating current of rated voltages above 52 kV, and for service frequencies up to and including 60 Hz.

It is intended that this international standard be used where the provisions of IEC 62271-

203 do not cover the application of GIL (see NOTE 3).

At each end of the HV gas-insulated transmission line, a specific element may be used for the connection between the HV gas-insulated transmission line and other equipment like bushings, power transformers or reactors, cable boxes, metal-enclosed surge arresters, voltage transformers or GIS, covered by their own specification.

ELECTRICAL INSULATING MATERIALS AND SYSTEMS

IEC/TS 61934 ed2.0, Electrical insulating materials and systems - Electrical measurement of partial discharges (PD) under short rise time and repetitive voltage

impulses, is applicable to the off-line electrical measurement of partial discharges (PD) that occur in electrical insulation systems (EIS) when stressed by repetitive voltage impulses generated from electronic power devices. Typical applications are EIS belonging to apparatus driven by power electronics, such as motors, inductive reactors and windmill generators. Excluded from the scope of this technical specification are:

- methods based on optical or ultrasonic PD detection,
- fields of application for PD measurements when stressed by non-repetitive impulse voltages such as lightning impulse or switching impulses from switchgear.

The principal changes with regard to the previous edition concern the addition of:

- an Introduction that provides some background information on the progress being made in the field of power electronics;
- impulse generators;
- PD detection methods;
- a new informative Annex C covering practical experience obtained from round-robin testing (RRT);
- example of noise levels, as shown in new informative Annex D.

IEC 61000-4-16 ED1.2 CONSOL. WITH AM1&2

Electromagnetic compatibility (EMC) - Part 4-16: Testing and measurement techniques - Test for immunity to conducted, common mode disturbances in the frequency range 0 Hz to 150 kHz IEC 61000-4-16:1998+A1:2001+A2:2009, establishes a common and reproducible basis for testing electrical and electronic equipment with the application of common mode disturbances to power supply, control, signal and communication ports. This standard defines test voltage and current waveform, range of test levels, test equipment, test set-up and test procedures. The test is intended to demonstrate the immunity of electrical and electronic equipment when subjected to conducted, common mode disturbances such as those originating from power line currents and return leakage currents in the earthing/grounding system.

ELECTROMAGNETIC ENVIRONMENTS

IEC/TR 61000-2-5:2011 is a Technical Report intended for guidance for those who are in charge of considering and developing immunity requirements. It also gives basic guidance for the selection of immunity levels. The data are applicable to any item of electrical or electronic equipment, sub-system or system that operates in one of the locations as considered in this Technical Report. It

has the status of a basic EMC publication in accordance with IEC Guide 107. Knowledge of the electromagnetic environment that exists at locations where electrical and electronic equipment and systems are intended to be operated is an essential precondition in the process of achieving electromagnetic compatibility. This knowledge can be obtained by various approaches, including a site survey of an intended location, the technical assessment of the equipment and system as well as the general literature.

SEMICONDUCTOR DEVICE STANDARD

Mechanical standardization of semiconductor devices - Part 6-12: General rules for the preparation of outline drawings of surface mounted semiconductor device packages - Design guidelines for fine-pitch land grid array (FLGA), IEC 60191-6-12:2011, provides standard outline drawings, dimensions, and recommended variations for all fine-pitch land grid array packages (FLGA) with terminal pitch of 0,8 mm or less. This edition includes the following significant changes with respect to the previous edition:

- scope is expanded so that this standard include the square type FLGA. The title of this standard has been changed accordingly: "Rectangular type" has been deleted from the title;
- ball pitch of 0,3 mm has been added;
- datum is changed from the body datum to the ball datum;
- combination lists of D, E, MD, and ME have been revised.

NEW CONNECTORS STANDARD

IEC 61076-2-106:2011 describes circular connectors with IP40 or IP65/67 protection degree, typically used for industrial process measurement and control. These connectors consist of fixed and free connectors, either rewirable or non-rewirable, with M16 x 0,75 screw-locking. Male connectors have round contacts \varnothing 1,5 mm or \varnothing 1,0 mm.

MICROPROCESSOR SYSTEM STANDARD

ISO/IEC/IEEE 60559:2011(E) specifies formats and methods for floating-point arithmetic in computer systems - standard and extended functions with single, double, extended, and extendable precision - and recommends formats for data interchange. Exception conditions are defined and standard handling of these conditions is specified. It provides a method for computation with floating-point numbers that will yield the same result whether the processing is done in hardware, software, or a combination of the two. The results of the computation will be identical, independent of implementation, given the same input data. Errors, and error conditions, in the mathematical processing will be reported in a consistent manner regardless of implementation. This first edition, published as ISO/IEC/IEEE 60559,

replaces the second edition of IEC 60559.

CONNECTORS STANDARD

IEC 60512-9-3:2011 defines a standard test method to assess the mechanical and electrical operational endurance, i.e. engaging and separating cycles, of a connector in an operating mode which includes a specified electrical load. This second edition cancels and replaces Test 9c of IEC 60512-5, issued in 1992, and constitutes a technical revision. The main technical changes with regard to the previous edition are as follows:

- An additional requirement to 4.1 stating that if more than one electrical circuit is wired for testing, the wiring shall be carried out in a parallel electrical circuit.
- Subclauses 4.3 through 4.7 were removed and replaced by 4.2 through 4.4.

SEMICONDUCTOR STANDARD

IEC 60749-40:2011 is intended to evaluate and compare drop performance of a surface mount semiconductor device for handheld electronic product applications in an accelerated test environment, where excessive flexure of a circuit board causes product failure. The purpose is to standardize test methodology to provide a reproducible assessment of the drop test performance of a surface mounted semiconductor devices while duplicating the failure modes normally observed during product level test. This international standard uses a strain gauge to measure the strain and strain rate of a board in the vicinity of a component.

RF CONNECTORS STANDARD

IEC 61169-35:2011(E) provides information and rules for preparation of detail specification of 2,92 series RF coaxial connectors together with the pro-forma blank detail specification. It also prescribes mating face dimensions for high performance connectors - grade 1, dimensional detail of standard test connectors - Grade 0, gauging information and tests selected from IEC 61169-1 applicable to all detail specifications relating to 2,92 series RF coaxial connectors. It cancels and replaces IEC/PAS 61169-35, published in 2009, of which it constitutes a minor revision. The only change is that the PAS has been changed into and International Standard.

SEMICONDUCTOR STANDARD

IEC 60749-30:2005+A1:2011 establishes a standard procedure for determining the preconditioning of non-hermetic surface mount devices (SMDs) prior to reliability testing. The test method defines the preconditioning flow for non-hermetic solid-state SMDs representative of a typical industry multiple solder reflow operation. These SMDs should be subjected to the appropriate preconditioning sequence described in this standard prior to being submitted to specific in-house reliability testing (qualification and/or reliability monitoring) in order to evaluate long term reliability (impacted by soldering

stress). This consolidated version consists of the first edition (2005) and its amendment 1 (2011). Therefore, no need to order amendment in addition to this publication.

EMC REQUIREMENTS FOR POWER SUPPLY UNITS

IEC 61204-3:2011 specifies electromagnetic compatibility (EMC) requirements for power supply units (PSUs) providing d.c. output(s) with or without auxiliary a.c. output(s), operating from a.c. or d.c. source voltages up to 600 V a.c. or 1 000 V d.c. The main changes with respect to the previous edition are listed below:

- Update of the scope to align with IEC 61204-7.
- Update of the normative references to the latest editions.
- Change of the definitions of environments to align with the latest editions of the applicable normative references.
- Revision of the applicability of tests to different power supply technologies.
- Revision of the emission limits and requirements to align with the latest editions of the applicable normative references.
- Revision of the immunity limits and requirements to align with the latest editions of the applicable normative references.
- Clarification of the different classes of PSU.

INTEGRATED CIRCUITS STANDARD

IEC 61967-8:2011 defines a method for measuring the electromagnetic radiated emission from an integrated circuit (IC) using an IC stripline in the frequency range of 150 kHz up to 3 GHz. The IC being evaluated is mounted on an EMC test board (PCB) between the active conductor and the ground plane of the IC stripline arrangement.

This publication is to be read in conjunction with IEC 61967-1:2002.

ELECTROMAGNETIC COMPATIBILITY STANDARD

IEC/TR 61000-3-15:2011(E) is concerned with the critical assessment of existing and emerging national and international standards for single and multi-phase dispersed generation systems up to 75 A per phase, particularly converters connected to the public supply low voltage network. This Technical Report intends to serve as a starting point and to ultimately pave the way for the definition of appropriate EMC requirements and test conditions. This Technical Report is limited to EMC issues (immunity and emission) up to 9 kHz and does not include other aspects of connection of generators to the grid. This Technical Report focuses on emission caused by distributed generation (mainly harmonics and inter-harmonics, DC emissions flicker, rapid voltage changes and fluctuations), as well as immunity aspects to normally occurring events in the public supply network

(voltage dips and short interruptions, frequency variations, harmonics and interharmonics). Every effort has been made to utilize already existing emission and immunity standards, including the test set-up and existing test equipment in use.

SEMICONDUCTOR AND MICRO-ELECTROMECHANICAL DEVICES STANDARD

IEC 62047-12:2011 specifies a method for bending fatigue testing using resonant vibration of microscale mechanical structures of MEMS (micro-electromechanical systems) and micromachines. This standard applies to vibrating structures ranging in size from 10 µm to 1 000 µm in the plane direction and from 1 µm to 100 µm in thickness, and test materials measuring under 1 mm in length, under 1 mm in width, and between 0,1 µm and 10 µm in thickness. The main structural materials for MEMS, micromachine, etc. have special features, such as typical dimensions of a few microns, material fabrication by deposition, and test piece fabrication by means of non-mechanical machining, including photolithography. The MEMS structures often have higher fundamental resonant frequency and higher strength than macro structures. To evaluate and assure the lifetime of MEMS structures, a fatigue testing method with ultra high cycles (up to 10¹²) loadings needs to be established. The object of the test method is to evaluate the mechanical fatigue properties of microscale materials in a short time by applying high load and high cyclic frequency bending stress using resonant vibration.

EMC EMISSION ASSESSMENT STANDARD

IEC/TR 61000-3-14:2011(E) is a Technical Report which provides guidance on principles that can be used as the basis for determining the requirements for the connection of disturbing installations to low voltage (LV) public power systems. For the purposes of this part of IEC 61000, a disturbing installation means an installation (which may be a load or a generator) that produces disturbances: harmonics and/or interharmonics, voltage flicker and/or rapid voltage changes, and/or voltage unbalance. The primary objective is to provide guidance to system operators or owners for engineering practices, which will facilitate the provision of adequate service quality for all connected customer installations. In addressing installations, this report is not intended to replace equipment standards for emission limits. This report addresses the allocation of the capacity of the system to absorb disturbances. It does not address how to mitigate disturbances, nor does it address how the capacity of the system can be increased.

SEMICONDUCTOR MAGNETIC AND CAPACITIVE COUPLER STANDARD

IEC/PAS 60747-17:2011(E) gives the terminology, essential ratings, characteristics, safety test and the measuring methods of magnetic and capacitive couplers.

It specifies the principles of magnetic and capacitive coupling across an isolation barrier and the related requirements for basic isolation and reinforced insulation.

RADIATION PROTECTION INSTRUMENTATION

IEC 61577-3:2011 describes the specific requirements for instruments measuring the volumetric activity of airborne short-lived radon decay products and/or their ambient potential alpha-energy concentration outdoors, in dwellings, and in workplaces including underground mines. This standard applies practically to all types of electronic instruments that are based on grab sampling, continuous sampling technique and electronic integrating measurement methods. This new edition includes the following significant technical changes with respect to the previous edition:

- implementation of new requirements and tests concerning radiation detection performance;
- implementation of new requirements and tests concerning environmental performance;
- harmonization of the requirements and tests concerning electrical and mechanical performance with other standards in the area of radiation protection instrumentation.

FIXED CAPACITORS STANDARD FOR USE IN ELECTRONIC EQUIPMENT

IEC 60384-2:2011 applies to fixed capacitors for direct current, with metallized electrodes and polyethylene-terephthalate dielectric for use in electronic equipment. These capacitors may have "self-healing properties" depending on conditions of use. They are primarily intended for applications where the a.c. component is small with respect to the rated voltage. Two performance grades of capacitors are covered, Grade 1 for long-life application and Grade 2 for general application. Capacitors for electromagnetic interference suppression and surface mount fixed metallized polyethylene-terephthalate film dielectric d.c. capacitors are not included, but are covered by IEC 60384-14 and IEC 60384-19 respectively. This fourth edition cancels and replaces the third edition published in 2005 and contains the following significant technical changes with respect to the previous edition.

- Table 1, Sampling plan together with numbers of permissible non-conformance for qualification approval test, has been adjusted.
- Table 3, Lot-by-lot inspection, has been changed, highlighting assessment level EZ only.
- Table 4, Periodic inspection, has been changed, highlighting assessment level EZ only.
- The preferred values of rated voltages have been updated in conformance with the basic series of preferred values R5 and R10 given in ISO 3.

CONNECTORS FOR ELECTRONIC EQUIPMENT

IEC 60603-7:2008+A1:2011 covers 8-way unshielded free and fixed connectors and is intended to specify the

common dimensions, mechanical, electrical and environmental characteristics and tests for the family of IEC 60603-7-x connectors. These connectors are interchangeable and interoperable with other IEC 60603-7 series connectors. This new edition includes the following significant technical changes with respect to the previous edition:

- updated drawings and test schedules on the basis of IEC 60603-7-4;
- corrected figure illustrating a connector de-rating curve.

This consolidated version consists of the third edition (2008) and its amendment 1 (2011). Therefore, no need to order amendment in addition to this publication.

COAXIAL COMMUNICATION CABLES

IEC 61196-8-1:2012 is part of the IEC 61196 series and applies to coaxial communications cables described in IEC 61196-8. It specifies the requirements for semi-flexible radio frequency and coaxial cables with polytetrafluoroethylene (PTFE) dielectric. These cables are for use in microwave and wireless equipment or other signal transmission equipment or units at frequencies from 500 MHz up to 18 GHz. This blank detail specification is to be read in conjunction with IEC 61196-1 and IEC 61196-8. The blank detail specification determines the layout and style for detail. Detail specifications, based on the blank detail specification, may be prepared by a national organization, a manufacturer or a user.

EMC METALLIC COMMUNICATION CABLE TEST METHODS

Project IEC 62153-4-14 ed1.0 Final Draft International Standard is an up to 3 months' pre-release of the official publication. It is available for sale during its voting period: 2012-02-17 to 2012-04-20. By purchasing this FDIS now, you will automatically receive, in addition, the final publication.

International Organization for Standardization (ISO) / IEC

INFORMATION TECHNOLOGY SOFTWARE MEASUREMENT STANDARD

ISO/IEC 14143-2:2011, functional size measurement -- Part 2: conformity evaluation of software size measurement methods to ISO/IEC 14143-1:

- establishes a framework for the conformity evaluation of a Candidate FSM Method against the provisions of ISO/IEC 14143-1;
- describes a process for conformity evaluation of whether a Candidate FSM Method meets the (type) requirements of ISO/IEC 14143-1 such that it is an actual FSM method, i.e. they are of the same type;
- describes the requirements for performing a

conformity evaluation in order to ensure repeatability of the conformity evaluation process, as well as consistency of decisions on conformity and the final result;

- aims to ensure that the output from the conformity evaluation process is objective, impartial, consistent, repeatable, complete and auditable;
- provides informative guidelines for determining the competence of the conformity evaluation teams;
- provides an example checklist to assist in the conformity evaluation of a Candidate FSM Method; and
- provides an example template for the conformity evaluation report.

RFID CONFORMANCE TEST METHODS

ISO/IEC 18047-2:2012 defines test methods for determining the conformance of radio frequency identification (RFID) devices (tags and interrogators) for item management with the specifications given in ISO/IEC 18000-2, but does not apply to the testing of conformity with regulatory or similar requirements.

The test methods require only that the mandatory functions, and any optional functions which are implemented, be verified. This may, in appropriate circumstances, be supplemented by further, application-specific functionality criteria that are not available in the general case.

The interrogator and tag conformance parameters in ISO/IEC 18047-2:2012 are the following:

- mode-specific conformance parameters including nominal values and tolerances;
- parameters that apply directly affecting system functionality and inter-operability.

The following are not included in ISO/IEC 18047-2:2012:

- parameters that are already included in regulatory test requirements;
- high-level data encoding conformance test parameters (these are specified in ISO/IEC 15962).

Unless otherwise specified, the tests in ISO/IEC 18047-2:2012 are to be applied exclusively to RFID tags and interrogators defined in ISO/IEC 18000-2.

International Special Committee on Radio Interference (CISPR)

PRE-RELEASE ON ELECTROMAGNETIC COMPATIBILITY OF MULTIMEDIA EQUIPMENT

This International Standard applies to multimedia equipment (MME) as defined in 3.1.23 and having a rated r.m.s. AC or DC supply voltage not exceeding 600 V. Equipment within the scope of CISPR 13 or CISPR 22 is within the scope of this publication. MME intended primarily for professional use is within the scope of this publication. The radiated emission requirements in this standard are not intended to be applicable to the inten-

tional transmissions from a radio transmitter as defined by the ITU, nor to any spurious emissions related to these intentional transmissions. Equipment, for which emission requirements in the frequency range covered by this publication are explicitly formulated in other CISPR publications (except CISPR 13 and CISPR 22), are excluded from the scope of this publication.

FCC ACCEPTANCE OF CISPR 22 DATA

The FCC accepts measurement data for unintentional unlicensed Part 15 devices using CISPR 22 1997 standard. However, most manufacturers and some test laboratories believe that the FCC accepts measurement data based on any CISPR 22 standard, regardless of the year. In fact, 47CFR 15.38(a) lists only the third edition of the International Special Committee on Radio Interference (CISPR), Pub. 22, "Information Technology Equipment—Radio Disturbance Characteristics—Limits and Methods of Measurement," 1997, IBR approved for §15.109. The FCC accepts data based only on this CISPR edition. For any other edition or year to be acceptable, it would have to be included in the list in 47CFR 15.38(a), or included in a policy from the FCC, as described here in FCC 47CFR 15.38(a) "Incorporation by reference" rule: "The materials listed in this section are incorporated by reference in this part. These incorporations by reference were approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. These materials are incorporated as they exist on the date of the approval, and notice of any change in these materials will be published in the Federal Register."

We have no knowledge of FCC dismissals as a result of using other CISPR 22 standard versions and dates; nonetheless, FCC 47CFR15.38(a) lists CISPR 22 1997 standard as the only alternative standard for Part 15 device measurement data.

EMC REQUIREMENTS FOR HOUSEHOLD APPLIANCES

CISPR 14-1:2005+A1:2008+A2:2011 applies to the conduction and the radiation of radio-frequency disturbances from appliances whose main functions are performed by motors and switching or regulating devices, unless the R.F. energy is intentionally generated or intended for illumination. It includes such equipment as:

- household electrical appliances,
- electric tools,
- regulating controls using semiconductor devices,
- motor-driven electro-medical apparatus,
- electric/electronic toys,
- automatic dispensing machines as well as cine or slide projectors.

Also included in the scope of this standard are separate parts of the above mentioned equipment such as motors, and switching devices relays (power or protective). However, no emission requirements apply unless formulated in this standard. The frequency range covered is 9 kHz to 400 GHz. Multi-

function equipment which is subjected simultaneously to different clauses of this standard and/or other standards shall meet the provisions of each clause/standard with the relevant functions in operation; details are given in 7.2.1. The limits in this standard have been determined on a probabilistic basis, to keep the suppression of disturbances economically feasible while still achieving an adequate radio protection. In exceptional cases radio frequency interference may occur, in spite of compliance with the limits. In such a case, additional provisions may be required. The effects of electromagnetic phenomena relating to the safety of apparatus are excluded from the scope of this standard. This consolidated version consists of the fifth edition (2005), its amendment 1 (2008) and its amendment 2 (2011). Therefore, no need to order amendments in addition to this publication.

ELECTROMAGNETIC COMPATIBILITY OF MULTIMEDIA EQUIPMENT STANDARD

CISPR 32:2012 International Standard applies to multimedia equipment (MME) having a rated r.m.s. AC or DC supply voltage not exceeding 600 V. Equipment within the scope of CISPR 13 or CISPR 22 is within the scope of this publication. MME intended primarily for professional use is within the scope of this publication. The radiated emission requirements in this standard are not intended to be applicable to the intentional transmissions from a radio transmitter as defined by the ITU, nor to any spurious emissions related to these intentional transmissions. Equipment, for which emission requirements in the frequency range covered by this publication are explicitly formulated in other CISPR publications (except CISPR 13 and CISPR 22), are excluded from the scope of this publication. This document does not contain requirements for in-situ assessment. Such testing is outside the scope of this publication and may not be used to demonstrate compliance with it. This publication covers two classes of MME (Class A and Class B). The objectives of this publication are to establish requirements which provide an adequate level of protection of the radio spectrum, allowing radio services to operate as intended in the frequency range 9 kHz to 400 GHz and to specify procedures to ensure the reproducibility of measurement and the repeatability of results.

EMC FILTERING DEVICES STANDARD

CISPR 17:2011 specifies methods to measure the radio interference suppression characteristics of passive EMC filtering devices used in power and signal lines, and in other circuits. The defined methods may also be applied to combinations of over-voltage protection devices and EMC filtering devices. The measurement method covers the frequency range from 9 kHz to several GHz depending on the device and test circuit. The standard describes procedures for laboratory tests (type tests) as well as factory tests. The suppression characteristics of EMC filters and components used for the suppression of

EM disturbances, are a function of numerous variables such as impedance of the circuits to which they connect, operating voltage and current, and ambient temperature. This standard specifies uniform test methods that will enable comparison of filtering and suppression characteristics determined by test laboratories or specified by manufacturers. Measurement procedures are provided for unbiased and bias conditions.

European Telecommunications Standards Institute (ETSI)

HARMONIZED EUROPEAN STANDARD

ETSI EN 302 729-2 V1.1.2 specifies the requirements for Level Probing Radar (LPR) applications based on pulse RF, FMCW or similar wideband techniques.

LPRs are used in many industries concerned with process control to measure the amount of various substances (mostly liquids or granulates). LPRs are used for a wide range of applications such as process control, custody transfer measurement (government legal measurements), water and other liquid monitoring, spilling prevention and other industrial applications. The main purposes of using LPRs are:

- to increase reliability by preventing accidents;
- to increase industrial efficiency, quality and process control;
- to improve environmental conditions in production processes.

LPR always consist of a combined transmitter and receiver and are used with an integral or dedicated antenna. The LPR equipment is for professional applications to which installation and maintenance are performed by professionally trained individuals only.

EMC AND RADIO SPECTRUM MATTERS

ETSI EN 305 550-2 V1.1.1 is a new standard that takes advantage of technical developments within the SRD industry. In particular this includes the development in technologies which makes applications in the higher frequency range possible. This standard is part 2 of a multi-part deliverable covering Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Radio equipment to be used in the 40 GHz to 246 GHz frequency range.

RADIO EQUIPMENT AND SERVICES

ETSI EN 301 489-1 V1.9.2 contains the common requirements for radio communications equipment and associated ancillary equipment, in respect of Electromagnetic Compatibility (EMC).

Product dependent arrangements necessary to perform the EMC tests on dedicated types of radio communications equipment, and the assessment of test results, are detailed in the appropriate product related parts of

EN 301 489 series [i.13].

The present document, together with the product related part, specifies the applicable EMC tests, the methods of measurement, the limits and the performance criteria for radio equipment and associated ancillary equipment. In case of differences (for instance concerning special conditions, definitions, abbreviations) between part 1 of EN 301 489 series [i.13] and the relevant product related part of EN 301 489 series [i.13], the product related part takes precedence.

Technical specifications related to the antenna port of radio equipment and radiated emissions from the enclosure port of radio equipment and combinations of radio and associated ancillary equipment are not included in the present document. Such technical specifications are normally found in the relevant product standards for the effective use of the radio spectrum.

The environment classification used in the present document refers to the environment classification used in:

- EN 61000-6-3 [i.4] and EN 61000-6-1 [i.5] for the residential, commercial and light industrial environment; or
- TR 101 651 [i.6] for the telecommunication centre environment; or
- ISO 7637-2 [8] for the vehicular environment.

The EMC requirements have been selected to ensure an adequate level of compatibility for apparatus intended to be used in the environments mentioned above. The levels, however, do not cover extreme cases which may occur in any location but with low probability of occurrence.

PORTABLE VERY HIGH FREQUENCY RADIOTELEPHONE EQUIPMENT STANDARD

This standard states the minimum technical characteristics and methods of measurement required for portable Very High Frequency (VHF) radiotelephones with integrated handheld class D DSC operating in certain frequency bands allocated to the maritime mobile service using either 25 kHz channels or 25 kHz and 12,5 kHz channels.

Institute of Electrical and Electronics Engineers (IEEE)

NEW COMMUNICATION STANDARDS FOR SMART GRID METERING DEVICES

Among the efficiencies promised by the smart grid is the use of metering devices that not only report usage to utilities but also inform users how to schedule consumption to lower-cost off-peak hours or even control that consumption automatically. Two new IEEE standards provide multisource “plug and play” environments for the millions of metering devices in the field now and in

the future. Both standards solve problems associated with single-source systems and with multisource systems based upon proprietary communications protocols.

IEEE 1702™, “IEEE Standard for Telephone Modem Communication Protocol to Complement the Utility Industry End Device Data Tables” is for devices using the ANSI C12.21 telephone modem communication interface. IEEE 1701™, “IEEE Standard for Optical Port Communication Protocol to Complement the Utility Industry End Device Data Tables,” (also known as MC1218 and ANSI C12.18) is for devices using the ANSI Type 2 optical port interface.

STANDARD LIMITING INSERTION OF HARMONICS INTO POWER GRID

The IEEE Standards Association (IEEE-SA) Standards Board approved two new projects to develop standards that will limit the injection of harmonic frequencies into the public electric transmission system. Harmonic pollution is a growing problem caused by the widespread use of power supplies and other non-linear loads. It can result in power loss and equipment damage and it may also be related to environmental safety issues. Both standards will address harmonic injection in 60Hz and 120V/240V systems such as those in use in the United States, Canada and other regions of the world. Both standards will also use the IEC SC77A and IEC 61000-3-12 standards as seed documents.

NEW WIRELESS NETWORK STANDARD FILLS IN THE WHITE SPACE

The wireless spectrum was carved up in the mid-20th century with protection of commercial radio and television signals as its primary concern. One example of this was the practice of leaving “white space” between broadcast channels to prevent interference by analog signals crowded too close together. Especially since the dawn of the digital age, technology has gotten better and better at reclaiming such underutilized slices of this spectrum, creating a wide array of new markets and applications that have opened up communication in revolutionary ways—without degrading performance by legacy spectrum users

A new standard, IEEE 1900.4a™-2011, defines additional components of the IEEE 1900.4™ system to enable mobile wireless access service in white space frequency bands without any limitation on used radio interface (physical and media access control layers, carrier frequency, etc.).

WIRELESS LAN MEDIUM ACCESS CONTROL AND PHYSICAL LAYER SPECIFICATIONS

This revision specifies technical corrections and clarifications to IEEE Std 802.11 for wireless local area networks (WLANs) as well as enhancements to the existing medium access control (MAC) and physical layer (PHY) functions. It also incorporates Amendments 1, 2, 3, 4, 5,

7, 8, 9, and 10.

Other News

FCC PROPOSES RULES CHANGES TO IMPROVE WIRELESS COVERAGE

The Federal Communications Commission adopted a Notice of Proposed Rulemaking (NPRM) to facilitate the development and deployment of well-designed signal boosters, which hold great potential to empower consumers in rural and underserved areas to improve their wireless coverage.

Coverage gaps exist within those service areas and continue to pose a problem for residents, particularly in rural areas. Signal boosters are part of the solution to addressing coverage gaps in rural areas. The regulatory framework for signal boosters proposed in this Notice of Proposed Rulemaking (NPRM) is one element in a set of initiatives designed to promote deployment of mobile voice and broadband services in the United States.

EMC AND ELECTRICAL PROTECTION

This technical report addresses electromagnetic compatibility and protection of telecommunications equipment that is typically used by telecommunications service providers. Topics covered included ESD, EMI (both emissions and susceptibility), Lightning, Power Induction (transient and steady state), Power Contact, Corrosion, and DC Power.

FCC FINALIZES RULES FOR BROADBAND FROM WALL SOCKETS

The Federal Communications Commission affirmed its rules for Broadband over Power Lines with minor modifications. The new rules provide a balance between providing for Access BPL technology that has potential applications for broadband and Smart Grid while protecting incumbent radio services against harmful interference. The rules have been modified "to increase the required notch filtering capability for systems operating below 30 MHz from 20 to 25 dB; establish a new alternative procedure for determining site-specific extrapolation factors...; and adopts a definition for the 'slant-range distance' used in the BPL measurement guidelines to further clarify its application."

BPL allows electrical utilities to deliver broadband service over medium voltage lines to homes and businesses through electrical wall sockets. It also allows them to monitor power usage in the form of Smart Grid applications.

STANDARD TOPICAL OUTLINES FOR QUALIFICATION OF NONDESTRUCTIVE TESTING PERSONNEL

Recommended Practice No. SNT-TC-1A: Personnel Qualification and Certification in Nondestructive Test-

ing (2011) provides guidelines for employers to establish in-house certification programs for the qualification and certification of nondestructive testing personnel. Since 1966, employers have used this industry-valued document as the general framework for their NDT certification programs. This revision provides updated training and certification requirements for Level I, II and III personnel. New content on:

- Guided Wave and Ground Penetrating Radar as Methods
 - Radiological Testing Method which includes: Radiographic Testing, Computed Radiography, Computed Tomography, and Digital Radiography.
 - Ultrasonics, Time of Flight Diffraction and Phased Array as Techniques
 - Additional Example Questions
- ANSI/ASNT CP-105: Training Outlines for Qualification of Nondestructive Personnel (2011) is included.

NEW LAW FOCUSES ON RARE METALS IN ELECTRONICS

A provision on "conflict minerals" that was slipped into a 2010 financial reform law, the Dodd-Frank Act, will help educate American consumers on what is in their smart phones, computers and other electronics and where U.S. electronics manufacturers are getting those rare metals. In the jungles and mountains of the Democratic Republic of the Congo, armed groups have been wreaking havoc and getting much of their funding from mining rare metals during the area's 13-year-long civil war.

STANDARD FOR EM EXAMINATION OF FERROMAGNETIC STEEL WIRE ROPE

ASTM E1571 - 11 outlines a procedure to standardize an instrument and to use the instrument to examine ferromagnetic wire rope products in which the magnetic flux and magnetic flux leakage methods are used. If properly applied, the magnetic flux method is capable of detecting the presence, location, and magnitude of metal loss from wear, broken wires, and corrosion, and the magnetic flux leakage method is capable of detecting the presence and location of flaws such as broken wires and corrosion pits.

The instrument's response to the rope's fabrication, installation, and in-service-induced flaws can be significantly different from the instrument's response to artificial flaws such as wire gaps or added wires. For this reason, it is preferable to detect and mark (using set-up standards that represent) real in-service-induced flaws whose characteristics will adversely affect the serviceability of the wire rope.