Know Your Standards

Saga

Since this is an on-going series, I recommend that you look at previous offerings, because each one provides a background for its successors and thus helps understanding.

Last time we looked at different types of 'standards publication'. It was suggested that a table to summarize would be useful, so here it is. It is based on the way IEC identifies types, because that is the most 'structured' way. Rather than the cumbersome 'standards publication'. it is convenient to use 'standard' to mean any of these except Guide, and use 'Standard' when we mean only a fully normative publication.

Type of publication	Abbreviation	Description
Standard	none	'Normative' (i.e. prescriptive) document; uses 'shall' for provisions
Technical Report	TR	Review, survey or generally descriptive document; uses 'should' for recommendations
Technical Specification	TS	A possible future standard or a normative document which has strong support but no consensus for publication as a standard; uses 'shall'
Publicly-available Specification	PAS	Normative document obtained from another body that may become an IEC standard after experience of its use has been gained; uses 'shall'
Guide	none	One of a separate series of documents, addressed to standards committees rather than standards users. Some Guides are normative, or have parts that are normative.
Test Report Form	TRF	Guess? These official forms are not mandatory, but impress clients. They can be quite costly

There is another classification system that helps to understand the relationships between standards that deal with the same product type.

Class	Description
Product standard	Deals with the characteristics of the product as they affect its application. May include methods of measurement or performance requirements, or both (then it must be a Standard)
Methods of measurement Standard	Deals only (or almost only) with methods of measurement
Performance Standard	Deals with performance from the user's point of view
'Regulatory' performance Standard	EMC Standard or Safety Standard

Even that is not the end of the story, because 'regulatory' standards have a classification of their own, but implemented differently in safety and EMC standards!

Type	Description of safety Standard	Description of EMC Standard
Generic	Gives requirements that are applicable to products that do not have an applicable product family or product standard and set a benchmark for the requirements specified in those standards Usually Part 1 of a multi-part standard; includes methods of measurement	Gives requirements that are applicable to products that do not have an applicable product family or product standard and sets a benchmark for the corresponding requirements specified in those standards A Standard in the IEC 61000-6- series
Basic	Rare; an example is IEC 60990 on measurement of touch current. Often about methods of measurement.	Gives methods of measurement that are applicable to most product families; suggests numerical requirements based on those methods Standards in the IEC 61000-4- series and the CISPR 16 series
Product Family	Deals with a range of products using **closely** similar technology; usually a Part other than Part 1, or a section of Part 2, of a multi-part standard. May include additional methods of measurement	Deals with a range of products using **broadly** similar technology (maybe **very** broad, e.g. IEC 61000-3-2 and -3 cover almost all mains-powered products) Standards in the IEC 61000-3- series and CISPR NN-n standards, except the CISPR 16 series, also some standards produced by product committees.
Product	Deals with a closely-defined product; usually a section of Part 2 of a multi-part standard	Some standards produced by product committees
Support	A TR or TS that gives guidance and recommendations where a Standard does not exist	A TR or TS that gives guidance and recommendations where a Standard does not exist

Generic safety Standards

There are too many of these to list, but notable ones include IEC 60065 (consumer electronics), IEC 60204-1 (machinery), IEC 60335-1 (household appliances), IEC 60601-1 (medical), IEC 60950-1 (ITE and office machines) and IEC 61010-1 (measuring instruments, industrial process control and laboratory equipment).

There are EN versions of all of these, with varying degrees of difference from the IEC version. Since even a small difference may affect YOUR product profoundly, it is most unwise to consult the IEC when the EN applies, or vice versa.

Generic EMC standards

Reference	Property	EMC environment
IEC 61000-6-1	Immunity	Residential, commercial and light industry
IEC 61000-6-2	Immunity	(Heavy) Industrial
IEC 61000-6-3	Emission	Residential, commercial and light industry
IEC 61000-6-4	Emission	(Heavy) Industrial
IEC TS 61000-6-5	Immunity	Power station and sub-station

Basic safety Standards

There are few of these with wide application, except IEC 60990, already mentioned above.

Note - the terms 'basic safety Standard' and 'basic safety publication' are not of the same meaning.

Basic EMC Standards

Reference	Description
IEC 61000-4-1	Overview of the IEC 61000-4 series
IEC 61000-4-2	Immunity to electrostatic discharge (ESD)
IEC 61000-4-3	Immunity to radiated radio-frequency electromagnetic fields
IEC 61000-4-4	Immunity to fast transients or bursts
IEC 61000-4-5	Immunity to surges
IEC 61000-4-6	Immunity to conducted disturbances induced by radio-frequency fields
IEC 61000-4-7	Measurement of harmonics and interharmonics of the power supply
IEC 61000-4-8	Immunity to power frequency magnetic field
IEC 61000-4-9	Immunity to pulse magnetic field
IEC 61000-4-10	Immunity to damped oscillatory magnetic field
IEC 61000-4-11	Immunity to voltage dips, short interruptions and voltage variations
IEC 61000-4-12	Immunity to ring-wave
IEC 61000-4-13	Immunity of the AC power port to harmonics, interharmonics and low-frequency mains signalling
IEC 61000-4-14	Immunity to voltage fluctuations
IEC 61000-4-15	Flickermeter specification
IEC 61000-4-16	Immunity to conducted common-mode disturbances, 0 Hz to 150 kHz
IEC 61000-4-17	Immunity to ripple on DC input power port
IEC 61000-4-18	Immunity to damped oscillatory wave
IEC 61000-4-19	Not issued
IEC 61000-4-20	Emission and immunity testing in transverse electromagnetic (TEM) waveguides
IEC 61000-4-21	Reverberation chamber test methods
IEC 61000-4-22	Not issued
IEC 61000-4-23	Test methods for protective devices for HEMP and other radiated disturbances
IEC 61000-4-24	Test methods for protective devices for HEMP conducted disturbance
IEC 61000-4-25	Immunity to HEMP for equipment and systems
IEC 61000-4-26	Not issued
IEC 61000-4-27	Immunity to unbalance [of 3-phase power supplies]
IEC 61000-4-28	Immunity to variation of power frequency
IEC 61000-4-29	Immunity of the DC power port to voltage dips, short interruptions and voltage variations
IEC 61000-4-30	Measurement of power quality
IEC 61000-4-31	Not issued
IEC 61000-4-32	High altitude electromagnetic pulse (HEMP) simulator compendium
IEC 61000-4-33	Measurement methods for high-power transient parameters
IEC 61000-4-34	Immunity of equipment with input current more than 16 A per phase to voltage dips, short interruptions and voltage variations

The above descriptions are not necessarily the titles of the standards, some of which murder the English language. The French titles are, of course, much more grammatical. The 'not issued' standards exist as titles on an IEC TC77 internal master list but may never be developed and published.

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