CISPR 32: Update on the anticipated EMC emission requirements for multimedia products
**Introduction**

The International Electrotechnical Committee (IEC) – the body that devises and defines international harmonised Standards for electrotechnical products runs over 90 sub-committees to tackle Standards and requirements for various product types. The Comité International Spécial des Perturbations Radioélectriques (CISPR) – the special international committee on radio interference - was originally founded in 1934 with a remit to set Standards relating to the management of electromagnetic interference between electrical products and they still shape international Standards for Electromagnetic Compatibility today.

In this document we will outline the currently anticipated new requirements of CISPR 32 Standard being developed and revised by the IEC for Multimedia Equipment and highlight the significant changes from the existing Standard.

As with any Standards development the process is complex, and for CISPR 32, it is more complex than usual as so far experts have yet to reach consensus on what the final details of the Standard should be. Moreover, technology continues to evolve during their discussions and the changing state-of-the-art is likely influence the Standard development further.

**Current Standards – The ‘state of the nation’**

The standards currently available for EMC measurements of Multimedia Equipment are shown in the Table below:

Sound & TV broadcast receivers
- Immunity – CISPR 20
- Emissions – CISPR 13

IT Equipment
- Immunity – CISPR 24
- Emissions – CISPR 22

Two new Standards are being prepared to replace the existing Standards above and expand their scope to include other types of Multimedia Equipment. These are CISPR 35 (covering immunity requirements for all types of Multimedia Equipment) – a draft document of which is expected to be available in September 2012 and CISPR 32 (covering emissions requirements for all types of Multimedia Equipment) - the full approved Standard is expected to be published in October 2011 (but delays in reaching agreement on revisions could mean this is not published until 2012).
Impetus for New Standards: (1) Removing ambiguity

Previously, Multimedia Equipment was defined as “an appliance, device or system that uses any electronic form of audio, video, graphics or data, and its main function includes the production, storage, processing, transmission, reception, display or reproduction of information”. As technology has developed and converged, this definition now covers everything from a personal computer to a speaker array from a domestic satellite dish to an android phone. Because so many product types can be included in this category, the existence of new ‘technology neutral’ Standards that encompass all of these product types means there wont be an ambiguity on which Standards to apply for compliance activities, as CISPR 32 should apply for emissions testing in all instances (and later CISPR 35 for all immunity testing).

Impetus for New Standards: (2) Enabling alternative test methods

The new Standard may also enable alternative test methods to be used, giving test laboratories greater flexibility. Previously Standards have been prescriptive about the specifics of the test environment, but CISPR 32 is likely to introduce a preferred method of testing and a provision for alternatives in the annexes.

About CISPR 32

CISPR 32 applies to multimedia equipment having a rated ACrms or DC supply voltage not exceeding 600 V, but equipment within the scope of CISPR 22 or CISPR 13 is also within the scope of this publication.

Two classes of End User Terminal Equipment Under Test EUT (Class A and Class B) are considered.

The objectives of the standard are:

1) 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;

2) to specify procedures to ensure the reproducibility of measurement and the repeatability of results
Notes:

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 (the United Nations specialized agency for information and communication technologies), nor to any spurious emissions related to these intentional transmissions.

The 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.

The Expected Changes

- The radiated requirements are much the same, except for TV products, where the tested frequency range is determined by its internal clock frequencies.

- Conducted emission requirements introduce Asymmetric modes of measurements for signal ports using AAN, CVP and Current Probe coupling devices.

- Disturbance Power is no longer specified.

- The image used to exercise displays and video ports is a colour bar signal. Scrolling “H” character is specified for POS terminal and Computer Terminal without graphic capability.

- CISPR 13 display luminance levels are removed; instead display and video parameters are given.

- During measurements if the level of an isolated emission exceeds the relevant limits, it shall be ignored provided the following two conditions are met when measured over a two minute interval:
  
  - the emission does not exceed the limit for more than 1 s;
  
  - the emission does not exceed the limit more than once in any 15 s observation period.

- For radiated emissions measurements the central point of the arrangement shall be positioned at the centre of the turntable. The measurement distance is the shortest horizontal distance between an imaginary circular periphery just encompassing this arrangement and the calibration point of the antenna.
During measurements of conducted emissions Broadcast receiver tuner ports shall be connected to an AAN that provides a 150 Ω CM termination to ground (or a CDN as defined in IEC 61000-4-6) bonded to the RGP.

MME related conditions for conducted emission measurement when using a vertical RGP the rear of the EUT, local AE and associated cabling shall be 0,4 m from the vertical RGP.

Additionally three annexes provide additional information for Prescan measurement methods, Test report contents summary and Support Information for the measurement procedures using AANs.

Conclusions

As the publication of CISPR 32 is dependent the various committees and working groups involved in the development of the Standard reaching a consensus on what the Standard should contain, we may not see the publication of this document until 2012. After that each country will be adopting the Standard into their local requirements and transition is likely to take another three years after publication. The controversy and disagreement over the inclusion of alternate test methodologies is delaying the progression of this Standard and it is likely that similar disagreements will arise in the development of CISPR 32’s partner Standard CISPR 35.

This means that manufacturers and test laboratories have breathing space to prepare for and plan their long term compliance activities and practices to ensure continuity in product conformity. However as products in the multimedia sector change and evolve so rapidly, manufacturers may well be 2 or 3 more product generations along before preparing for testing to CISPR 32 becomes a real consideration.

Manufacturers should seek the advice of their test and certification partner over the coming year to determine how CISPR may affect their product ranges.
How can Intertek help?

Intertek has a global network of 23 EMC laboratories providing testing services to national and international Standards across a wide variety of industry sectors including home appliances and electronics, military and aerospace, medical devices and telecommunications equipment. These laboratories provide the capacity, proximity and engineering resources to streamline your EMC compliance testing process for any market you want to reach.

As Intertek has considerable experience in assessing a wide range of product types, they are ideally positioned to test products evolving out of convergent technologies and provide advice on choosing the appropriate Standards to meet their compliance needs. For specific help and advice on CISPR 32, please contact Gareth Morgan at gareth.morgan@intertek.com

For more information on specific testing and certification information, please contact Intertek at 1-800-WORLDLAB, email icenter@intertek.com, or visit our website at www.intertek.com.

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