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ENTERPRISE DIRECTORATE-GENERAL

New Approach Industries, Tourism and CSR
Mechanical, Electrical and Telecom Equipment
TCAM Secretariat

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M/407 EN

STANDARDISATION MANDATE FORWARDED TO CEN/CENELEC/ETSI FOR HARMONISED STANDARDS COVERING ULTRA-WIDEBAND EQUIPMENT

PURPOSE

The purpose of this mandate is to establish a set of Harmonised Standards covering equipment implementing UWB applications to be recognised under Directive 1999/5/EC (the R&TTE Directive) giving a presumption of conformity with its requirements.

This mandate replaces mandate M/329¹ of 25 February 2003 in light of discussions on frequencies to be used by UWB applications.

JUSTIFICATION

This mandate derives from the R&TTE Directive. This Directive, following the New Approach on Technical Harmonisation and Standards², defines the essential requirements R&TTE equipment must meet to be placed on the market and to be put into service for its intended purpose.

Although various definitions exist for the term, UWB is generally understood to be a technology which spreads transmitted electromagnetic energy over a very large frequency range resulting in a very low spectral power density, which for UWB applications lies below classical EMC limits. Proposed applications of the technology range from communications, anti-collision radar to imaging techniques.

Following the first mandate, ETSI developed and maintained a programme of work and finalised 2 standards (EN 301 489-32 and EN 302 066-2 that cover EMC and radio requirements of ground- and wall-probing Radar applications). Progress on the rest of the programme was delayed awaiting the conclusion of sharing/compatibility studies in the CEPT. These studies aimed at identifying suitable frequency bands for operation and also studied the need for certain mechanisms to be implemented in equipment so as to avoid harmful interference to incumbent and future spectrum users.

¹ <http://ec.europa.eu/enterprise/rtte/mandates/m329en.pdf>

² Council Resolution of 7 May 1985 on a new approach concerning technical harmonisation and standardisation (85/C 136/01).

Besides bands for automotive Short-Range Radar applications in the 24 GHz and 79 GHz bands, the CEPT, in response to mandates of the European Commission pursuant to the Radio Spectrum Decision³ proposed harmonised conditions including power limits for devices using UWB technology in bands below 10.6 GHz.

In the studies, the use of suitable mitigation techniques (Detect And Avoid or DAA and Low Duty Cycle or LDC) is suggested to avoid interference to some indoor services in the 3.4 to 4.8 GHz band. Harmonised Standards should ensure adequate protection of these services. Equipment operating in the band 4.2 to 4.8 GHz and not implementing mitigation techniques, or equipment implementing LDC mitigation techniques in the 3.4 to 4.8 GHz band, as well as some niche applications are expected to reach the market imminently and therefore standards for this band are now urgently needed. Equipment in the 6-8.5GHz band are expected to reach the market at a later stage.

A draft Commission Decision on allowing the use of the radio spectrum for equipment using ultra-wideband technology in a harmonised manner in the Community, received a positive opinion from the Radio Spectrum Committee (RSC) acting as a regulatory committee in its meeting of December 4-5th, 2006. This draft and, when published, this decision define levels of protection to be achieved by UWB devices. These levels can either be achieved by meeting the limits as set out in its annex or be achieved by advanced mitigation techniques.

Harmonised standards must evolve to take account of existing and new allocations, e.g. those that may be proposed in WRC-07 for extending bands for International Mobile Telecommunications (IMT) and changes in allocations (e.g. the extension to 9 GHz). Harmonised Standards must ensure that legacy equipment will have already sufficiently disappeared from the market when the services open in new allocations. In this context normal product life cycles must be taken into account

DESCRIPTION OF MANDATED WORK

The European Standardisation Organisations are requested to:

- Update its work programme for harmonised standards covering UWB applications;
- Deliver a comprehensive set of harmonised standards, the references of which will be published in the official journal of the European Communities as giving presumption of conformity with the R&TTE Directive.
- Report the progress of the work to the Commission at regular intervals and at least prior to each meeting of the TCAM⁴;

RECOMMENDATIONS

The experts should liaise as appropriate with regulatory bodies and their experts in the context of the Memorandum of Understanding between ETSI and the European Communications Committee (ECC). They should consider the ECC Decision (06)04 and review the reports relating to UWB produced by the ECC.

³ http://europa.eu.int/information_society/policy/radio_spectrum/by_topics/uwb/index_en.htm

⁴ Telecommunications Conformity Assessment and Market Surveillance Committee, which is the standing Committee set-up by the Directive.

PROPOSED SCHEDULE

June 2007	Presentation of the work programme to TCAM
2 nd half 2007	As a matter of urgency delivery of harmonised standards for the 3.4-4.8 GHz frequency band
2 nd half 2008	Delivery of harmonised standards covering equipment implementing enhanced mitigation techniques
2 nd half 2008	Update of the work programme to reflect potential new allocations agreed in WRC-07 for IMT

ALIGNMENT WITH OTHER INTERNATIONAL WORK

Where appropriate, alignment with equivalent activities in the ITU and in ISO/IEC should be ensured. Due account should be taken of regulations and draft regulations adopted in other economies so as to ensure a global market for UWB devices.

STANDSTILL

Acceptance by of this mandate by the responsible standardisation organisation starts the standstill period referred to in Article 7 of Directive 98/34/EC of the European Parliament and of the Council of 22 June 1998

PUBLICATION IN THE OFFICIAL JOURNAL

The titles of the standards developed shall be forwarded to the Commission in the official languages of the European Union.

Annex 1: Maximum e.i.r.p. densities for equipment using ultra-wideband technology

Frequency range (GHz)	Maximum mean e.i.r.p. density (dBm/MHz)	Maximum peak e.i.r.p. density (dBm/50MHz)
Below 1.6	-90.0	-50.0
1.6 to 3.4	-85.0	-45.0
3.4 to 3.8	-85.0	-45.0
3.8 to 4.2	-70.0	-30.0
4.2 to 4.8	- 41.3 <i>(until December 31st, 2010)</i> - 70.0 <i>(beyond December 31st, 2010)</i>	0.0 <i>(until December 31st, 2010)</i> - 30.0 <i>(beyond December 31st, 2010)</i>
4.8 to 6.0	-70.0	-30.0
6.0 to 8.5	- 41.3	0.0
8.5 to 10.6	-65.0	-25.0
Above 10.6	-85.0	-45.0

Note 1: A maximum mean e.i.r.p. density of -41.3 dBm/MHz is allowed in the 3.4 - 4.8 GHz bands provided that a low duty cycle restriction is applied in which the sum of all transmitted signals is less than 5% of the time each second and less than 0.5% of the time each hour, and provided that each transmitted signal does not exceed 5 ms.

Note 2: Equipment using Ultra-Wideband technology may also be allowed to use the radio spectrum with other e.i.r.p. limits together with other appropriate mitigation techniques on condition that it achieves at least an equivalent level of protection as provided by the limits in this table.