

T&E Update

Testing • Engineering • Consulting

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New service for Washington Lab's clients!

FCC Designates ATCB To Expedite FCC Transmitter Approvals

American TCB has been designated as a Telecommunications Certification Body under the FCC's TCB program, offering a new level of service for Washington Laboratories' transmitter clients.

In December 1998, the FCC adopted new rules to streamline its equipment authorization procedures by allowing Telecommunications Certification Bodies (TCBs) to certify equipment under Parts 2 and 68 of CFR 47 (FCC Rules and Regulations).

TCBs are required to be accredited by the American National Standards Institute (ANSI) under International Standards Organization (ISO) Guide 65.

Under the program, TCBs are allowed to review application and issue FCC

Grants of Equipment Authorization (Certification). This means that the processing time for Certifications can be shortened considerably, thus speeding the time-to-market for transmitter equipment requiring FCC approvals.

ATCB is a cooperative venture between Washington Labs and Rhein Tech Labs. WL and RTL have enjoyed a cooperative relationship for over 10 years, sharing expertise and resources for serving the compliance requirements of clients in the US and abroad. Both companies enjoy a solid reputation with the FCC and have each successfully obtained over 1000 Certifications for their clients.

The structure of the ATCB procedures follows ISO Guide 65 which guarantees impartiality and confidentiality.

ATCB is designated to approve the following devices:

Unlicensed Low Power Transmitters (FCC Part 15)

Licensed Transmitter

ATCB is dedicated to providing timely, expert equipment certification under CFR 47. ATCB accepts applications for FCC Certification from NVLAP and A2LA ISO Guide 25-accredited testing laboratories and other approved sources.

Scope of Accreditation

In accordance with FCC Rules and Regulations for Telecommunications Certification Bodies and ISO Guide 65, ATCB is approved to certify products according to CFR 47 per the following

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RADIO AND TELECOMMUNICATION TERMINAL EQUIPMENT DIRECTIVE—*Is this True Deregulation for the Radio and Telecoms Industries?*

By
Martin Green
Technology International (Europe) Ltd.

Introduction

The publication of the Radio and Telecommunication Terminal Equipment Directive, 1999/5/EC, (R&TTED) of 9 March 1999; on 7 April 1999 will have a dramatic impact on the way in which manufacturers of radio and telecommunications equipment address the CE marking of their products. The directive has been heralded as a true example of deregulation of the radio and telecommunications sectors. Is this really so, or are we being led to believe that the changes in the rules represent deregulation when in fact they are just as stringent as they were before?

In this article I hope to be able to demonstrate that, although the requirements on manufacturers of radio and telecommunications equipment remain substantial, this is a deregulatory move. The manner

in which they must be able to prove the conformity of their products, involvement of nationally appointed regulatory bodies has really been relaxed and does represent deregulation. It will therefore have the effect of reducing the bureaucratic involvement of national agencies and will speed up the time-to-market for many manufacturers of radio and telecommunications products.

Aim of the Directive

The aim of the directive is to provide a platform for the mutual recognition of the conformity of radio and telecom products across the whole of the European Economic Area (EEA). Classically, approvals for radio and telecom products, despite the existence of Directive 98/13/EC that consolidated the telecommunications terminal equipment and satellite earth station equipment directives, were still performed on a national basis. However, Directive 98/13/EC did not cover a substantial por-

tion of the radio market. In addition the rapid development of wireless systems has meant that the regulatory regimes in place could not keep pace with technology and market developments.

It was therefore decided that a single set of rules should be established that covered the certification of both radio and telecommunications terminal equipment to ensure a simplified approach for the free movement of goods around the EU. To enable this to happen it was necessary for the national certification provisions to be relaxed and the national technical data essential for equipment designers to be made available. This would then enable manufacturers to have access to all the necessary technical data covering interface requirements for network access throughout the EEA. In this way there would be no restrictions on the free movement and supply of products, that met their national telecom and radio

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requirements, in the member states. This in turn would open up the telecom and radio markets to competition. Only in this way would there be a possibility of a truly competitive market in the community.

The Directive came into force on 8 April 2000, with a transition period that ends on 7 April 2001. During the transition period manufacturers (and suppliers) of applicable apparatus must ensure that products, placed on the market in the EEA, comply with the provisions of the R&TTED. Also during this period, manufacturers of products certified under the provisions of the directives and national requirements that the R&TTED replaces must ensure that their products are re-certified in accordance with these new requirements. The effect will be that, from 8 April 2001, all applicable apparatus being placed on the market will be certified fully to the R&TTED.

The application of the R&TTED is based on a harmonization of the technical requirements for certification based not only on a mutual recognition of conformity needs, but also on possible differences between member states in terms of their radio spectrum allocations and network interface specifications. The Directive acknowledges that these differences remain. However, instead of requiring suppliers to have their products certified by the member states conformity organizations, suppliers must now ensure that they meet the essential requirements of the Directive based on a regime which is largely that of self declaration against these requirements. In doing so they must be able to inter-work with the national networks or use acceptable parts of the spectrum. Having achieved this they must then declare that they do so by issuing a Declaration of Conformity.

Essential Requirements of the Directive

The Directive is constructed like all other "New Approach" directives in that it does not contain any specific references to performance standards. It identifies conformity with the "essential requirements" of the Directive as being a prerequisite to a claim of conformity and states how that may be done, but leaves the practicalities to the supplier of the apparatus. The Directive contains guidelines on the conformity approaches that may be followed, but leaves some options open to the supplier. In this way

it is not a highly prescriptive directive but provides a variety of different ways in which the supplier may demonstrate conformity with the essential requirements.

As with all directives, this Directive contains the necessary safeguard clauses to ensure that a product that is not in conformity may be taken off the market and removed from sale. This, however, can only happen with the approval of the Telecommunication Conformity Assessment and Market Surveillance Committee (TCAM) established in the community to do this. An important aspect of this Directive recognizes that for suppliers of products that fall into the scope of the Directive, they may supply their product once:

- They are confident that it complies with the essential requirements,
- Have CE marked the product
- Issued a Declaration of Conformity

This may be done without further approval or control until such time as he ceases to sell it or it is shown that the product does not comply. National bodies cannot restrict the sale without reference to, and approval of TCAM.

In view of the deregulatory nature of the Directive, it is highly likely that the member states and the TCAM will monitor its implementation extremely closely. They have particularly expressed concerns that, if the Directive is not applied by suppliers in a satisfactory manner,

then the electromagnetic spectrum may be misused to the detriment of other users or that the public telecommunications network may be degraded. Therefore they will take all necessary measures to ensure this does not happen.

Specific Requirements of the Directive

The Directive consists of 22 Articles preceded by 46 introductory paragraphs giving the background to the Directive. In addition, there are a further 7 annexes providing supplementary information on the application of the Directive. Each of the Articles is intended specifically to identify how the different aspects of the Directive are to be applied. This part of the article is a description of how the various parts mesh together to make up the complete Directive.

Scope and Aim

The scope and aim of the Directive is covered in Article 1 and specifically includes medical devices, active implantable medical devices, components or separate technical units of motor vehicles. Those products that are outside the scope of the Directive are listed in Annex I and may be summarized as being:

- Radio equipment used by radio amateurs, unless the equipment is commercially available

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schedule:

Unlicensed Transmitters under Part 15

Low power transmitters operating on frequencies below 1 GHz

Spread spectrum devices that are categorically excluded from routine evaluation of RF exposure hazards (No SAR)

Emergency alert systems

Unintentional radiators (e.g., personal computers and associated peripheral and TV Interface devices)

Consumer ISM devices subject to certification (e.g., microwave ovens, RF lighting and other consumer ISM devices)

Low power transmitters operating on frequencies above 1 GHz

Spread spectrum devices

Unlicensed Personal Communications Devices (Part 24)

Unlicensed National Information Infrastructure Devices

Licensed Radio Service Equipment

Personal Mobile Radio Services in 47 CFR Part 22 (cellular), 24, 25, 26 and 27

Maritime and aviation radio services in 47 CFR Parts 80 and 87

Microwave Radio Services in 47 CFR Parts 21, 74 and 101

For information on this program, contact Greg Snyder (gregs@wll.com). or Mike Violette (mikev@wll.com) at

	Annex II – internal production control	Annex III - internal production control plus radio test suites	Annex IV - technical construction file	Annex V - full quality assurance
Wired terminal equipment	Route allowed	Route NOT allowed	Route allowed	Route allowed
Radio equipment receiving parts	Route allowed	Route allowed	Route allowed	Route allowed
Radio equipment for which harmonized standards have been applied	Route NOT allowed	Route allowed	Route allowed	Route allowed
Radio equipment for which harmonized standards have not been applied	Route NOT allowed	Route NOT allowed	Route allowed	Route allowed

Table 1. Routes to Demonstrate Compliance

- Equipment falling within the scope of the Maritime Equipment Directive
- Cabling and wiring
- Receive-only radio equipment intended to be used solely for the reception of sound and TV broadcasting services
- Products, appliances and components for use within the field of civil aviation
- Air traffic management equipment and systems

Essential Requirements

The essential requirements as detailed in Article 2 cover four main areas:

1. Safety
2. EMC
3. Spectrum protection
4. Special provisions

Safety

The requirement for safety is that applicable apparatus should not put the health and safety of the user at risk. To this end the provisions of the Low Voltage Directive, 73/23/EEC, are applied without any voltage limit applying. This means that the voltage limits that define the scope of the LVD (50Vac to 1000Vac and 75Vdc to 1500Vdc) do not apply. This is the only safety directive specified and therefore the requirements to meet this directive also include RF radiation exposure for radio transmitters. To this end the European Commission has requested that CEN, CENELEC and ETSI prepare and the EU commissions will adopt harmonized standards covering exposure of the gen-

eral public to EM fields. These will generally be based on the national safety requirements which in turn originate from World Health Organization guidelines. In the absence of harmonized standards for EM exposure, suppliers of radio transmission equipment should use alternative national provisions that cover this aspect of the design of their products.

The procedures for applying the LVD have not changed and therefore manufacturer's documentation and testing processes can remain as they are. The only difference is that, as with the EMC Directive, although the provisions of the directive are applied the certification provisions are not used. Compliance is assumed with the affixing of the CE marking.

EMC

The Directive also requires that the EMC Directive, 89/336/EEC, be applied. The routes available to manufacturers are either the standards route or the Technical Construction File requirements. The procedures used are described in the directive and the national implementing regulations, but the main thing to note is that, although the directive provisions are applied, the CE marking is not affixed for this directive. However, if the TCF route is used, a competent body still issues a technical report or technical certificate. This is retained in the documentation and is used to justify the CE marking for the R&TTED.

The only exception for this is for Air Traffic Management Radio Systems. These are outside the scope of the

R&TTED. Therefore the use of EC Type-examination for EMC and the services of a notified body are still used.

Spectrum Protection

This is essentially the use of allocated frequencies, application and provision of licenses and the assurance that the RF transmissions will not cause unacceptable interference in other equipment. The requirements are heavily based on the meeting of standards. If this is not done then the manufacturer must provide a well argued case as to why the equipment may still be considered to be in conformity.

Special Provisions

The special provisions are listed below. A clear explanation as to when and how these will be applied will be provided by the EC Commission. Equipment must be constructed that:

- it interworks via networks with other apparatus and can be connected to interfaces of the appropriate type;
- it does not harm the network or its functioning, nor does it misuse network resources;
- it contains safeguards to ensure personal data and the privacy of the user/subscriber is protected;
- it supports certain features to protect against fraud;
- it support features to ensure access to emergency services;
- it supports certain features to assist users with a disability.

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Certification Routes

Options

Manufacturers have a variety of possible options when certifying their products. Depending on whether the products are wire based or radio based they may choose from one of four different routes to demonstrate conformity. The routes and their use are detailed below in Table 1.

Annex II

The simplest route is for wired telecommunications equipment. This requires that a manufacturer determines the specific harmonized standard that applies to his product. He then ensures that the product complies with the provisions in the standard and affixes the CE marking. The manufacturer or his authorized representative located in the European Community then issues the Declaration of Conformity.

The use of harmonized standards is an important aspect of the certification processes involved and during the transition period to 7 April 2001 a full range of standards will be published in the Official Journal of the European Communities for the R&TTED. In the meantime the directive allows the use of the standards that have been harmonized for the EMC Directive and LVD to provide a presumption of conformity. Certification to radio and telecommunications requirements may be achieved by application of the CTRs.

Annex III

This route is basically the same as that for Annex II, with the exception that, as it is specifically for radio communications equipment, the manufacturer must apply the radio test suites applicable to the apparatus. If these are not specified in harmonized standards, then he must seek the opinion of a notified body to identify the test suites.

Annex IV

Where the manufacturer chooses, he may assemble the evidence of conformity and present it to one or more notified bodies for an opinion as to whether or not it satisfies the requirements for a claim for conformity. It should be noted here that the opinion is not EC Type-examination. Notified bodies have no powers to prevent a product being placed on the market. There are no certificates issued and the manufacturer may seek the opinion of more than notified body. If he does then he must inform the notified bodies of the details of the other notified bodies approached.

If an opinion has not been received within four weeks the manufacturer is free to place the product on the market.

Annex V

Full quality assurance is the final option available. It is a route that is available to manufacturers, should they wish to take it, but it involves the services of a notified body to check, approve and monitor the quality assurance system being used. There is no reason why manufacturers should use this route, unless they have already established a similar route under the old legislation. Some notified bodies appointed under the old regime have indicated that they will not allow the use of their marks unless this regime is followed. In view of the lack of a requirement for notified body marks, it would seem a somewhat complex and unnecessary method to achieve certification.

Radio notifications and approvals

Notification

It is the responsibility of the manufacturer to notify the relevant member states of his intention to place a product on its national market at least four weeks in advance, unless the frequency bands have been harmonized throughout the Community. Of course, in the case of a non-harmonized frequency, where national licensing is being sought, this provision does not apply – it will have been applied automatically. The intent of this requirement is to ensure the free movement of goods, so that a manufacturer may still sell a product in a member state, although the use of the product in that member state is not approved.

The notification procedure is not intended to be used as any form of

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WHERE WILL YOU BE IN AUGUST, 2000?



**Mark your calendar now for the
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on Electromagnetic Compatibility:
A Spectrum of EMC Challenges
for the Next Millennium.**
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Join your hosts, the IEEE EMC Society, as engineering professionals from all over the globe meet in Washington DC at the 2000 IEEE International Symposium to discuss the news and views on the World of EMC, the challenges facing the EMC engineer in the government, commercial and military arenas, trends in standards and regulations, changes affecting product and system design, new ideas and challenges for the decade ahead. The spectrum of challenges for EMC is changing, ensure you're a part of the future at the 2000 IEEE International Symposium on EMC.

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www.dcemc2000.org



2000 Testing Workshop Series



August 11 • September 22 • November 3

Washington Labs has arranged its Free Workshop Schedule for 2000. These popular seminar/practical workshops include demonstrations, guest speakers, the latest EMC and safety compliance news, and lunch!

EMC Testing and Measurements

Designing to Avoid EMC Problems Down the Road

Watch our engineers demonstrate several testing techniques that uncover EMC flaws in electrical and electronic equipment—problems which can be avoided before the testing stage. You'll have the opportunity to "get specific" with the engineering staff on particular problems you may be encountering with current R&D designs.

Demystifying the LVD

Discover what the Low Voltage Directive means for your company's products. Whether testing and re-design are in order, or preparing your Declaration of Conformity to the appropriate harmonized product safety standard under the LVD, we'll help you understand the requirements.

Be sure to register early as positions fill up quickly. Call Patty or Michelle at 301-417-0220 to register today.

Meet the Staff

Meet Joe Vogel — the Manager of the Product Safety and Environmental Test Services Division for Washington Labs. He's also the man of many additional hats. Joe is not only responsible for managing the safety and environmental test labs, but has several other jobs as well: he is the corporate Quality Manager, an educational seminar speaker for the company, an on-site client consultant and troubleshooter, and he's been known to pinch-hit in the EMC lab when needed. Joe has also been cited in EE Magazine and is currently preparing an article for this publication. He's also scheduled to teach a course on Machinery Safety at George Washington University – check out WLL's website for more info.

Joe worked at TÜV Essen for four years and became Regional Manager in the Product Safety Division prior to joining Washington Labs in 1996. Before TÜV, he was employed by Datascope Corporation for 12 years, the last two of which he was an Associate Product Development Engineer.

Throughout his career, Joe has gained experience in several engineering areas including: the implementation of quality systems and procedures for ISO 9000 and EN 45000/ISO Guide 25 accreditation for Testing Laboratories; development and manufacture of new product releases, FQC testing for medical instrumentation, evaluation of telecom, medical, information technology and household products for safety compliance and



the design and testing of fiber-optic, opto-electronic, electro-mechanical, communication and data acquisition circuits for medical electronics; the list goes on and on!

He is a member of the Izaak Walton League Rockville Chapter and the IEEE. Joe, his wife Cheryl, and their two teenagers live in Derwood, having relocated from their New Jersey homeland.

When he's not racking up mileage for the company, Joe likes to travel for pleasure. He recently returned from Germany where he visited members of the Vogel family that he'd never met before. Be sure to ask to see the pictures from his trip – he's even got them on his own website! He'll surely give you the link if you drop him a line.

TÜV Qualified Laboratory

We are pleased to announce our recent acceptance into TÜV Rheinland of North America's Partner Laboratory Testing Program. After successfully completing an audit according to ISO/IEC Guide 25:1990, we were issued a certificate that identifies Washington Laboratories LTD. as a Qualified Laboratory for safety testing of: information technology equipment including electrical business equipment; Electrical equipment for measurement, control and laboratory use; and mains operated electronic and related apparatus for household and similar general use.

Joe Vogel, Product Safety Manager at WLL, sees this qualification as "...offering tremendous advantages to our clients by allowing us to reduce turnaround times and costs for investigations and submissions." Please give Joe a call to discuss how this program can help you meet your regulatory compliance needs.

FCC Certifications Service

American TCB, Inc.



www.americantcb.com

e-mail: info@americantcb.com

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approval process by spectrum management agencies.

National Type Approval

Much of the testing performed for EMC was also duplicated in the testing for national type approval. The testing requirements for national type approval are now covered by testing to the requirements of the radio test suites. The provisions for national type approval are therefore removed with this directive. However, all national licensing/license exempt and spectrum allocation provisions remain. Therefore, it is necessary to obtain approval for the use of radio transmitters in each of the member states.

Labeling

Equipment Class Identifier

On 16/17 December 1999 the EU Commission proposed a decision that equipment be divided into two classes and assigned an "Equipment Class Identifier" to one of the classes. It was agreed that the type of radio equipment that may be placed on the market without restriction be referred to as "Class 1" and those where member states place restrictions for some reason as "Class 2". For equipment in Class 1, an Equipment Class Identifier would not be assigned, but for equipment in Class 2 there would be an Equipment Class Identifier and the number would have to be placed on the apparatus.

Responsible Person

In addition to the CE marking, Equipment Class Identifier number (if applied) it is necessary to affix the number of the notified body as well as the name and address of the person responsible in the Community for affixing the CE marking and issuing the declaration of conformity. This detail may be placed on the accompanying literature, but it must be available for enforcement authorities to communicate to the supplier or manufacturer.

Conclusions

It may be concluded that the directive is a real attempt to deregulate the radio and telecommunications market. It offers benefits to manufacturers by removing the national provisions and permitting testing only once for sale in the EU. Testing may be performed anywhere, as long as it is performed satisfactorily. This should result in a reduced time-to-market as well as cost reductions for formal assessments. It is essential that there is satisfactory provision of information on interface requirements and if notified bodies are contacted for information and opinions, these are provided quickly.

The benefits will be accompanied with responsibilities and these should be recognized. There will be additional health and safety requirements for some apparatus as well as possible increases in liabilities for manufacturers. The product marking requirements change and new

technical documentation will be required, along with a new Declaration of Conformity.

There is no doubt that the competent authorities will police the application of the Directive closely. Failure to comply with its provisions will be seen by many as an easy way for manufacturers and suppliers to minimize their compliance costs and may well lower confidence in the performance of some products. If manufacturers are to avoid this they must take all efforts to ensure that they comply fully with the Directive and be seen to be doing so.

Useful web sites:

<http://www.gov.uk/document/misc/rtte/rtteweb.htm>

<http://forum.europa.eu.int/dg3/tcam.htm>

Martin Green is Director of Technology International, a UK Competent Body, who will provide a detailed examination of the Directive. Mr. Green has consulted on hundreds of EMC and compliance projects in the US, Europe and around the globe.

You can reach us at:

Washington Laboratories, Ltd.
Phone: 301-417-0220,
800-839-1649
Fax: 301-417-9069
e-mail: info@wll.com
web: www.wll.com



Washington Laboratories, Ltd.
7560 Lindbergh Drive
Gaithersburg, MD 20879

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