Since 8 April 2000, manufacturers placing telecommunications terminals and radio equipment on the European Union market have been able to use the most advanced conformity assessment procedure in the world. With radio equipment, the procedure replaced national approval systems. With telecommunications terminal equipment (including the terminals of some European harmonized radio networks, like GSM), it replaced its predecessor, the Telecommunications Terminal Directive (98/13/EC), with more flexible procedures.

All equipment placed on the market after 7 April 2001 has to comply with R&TTE Directive 1999/5/EC.

The R&TTE Directive does not define the details of technical requirements. However, it does outline some subject areas for essential requirements, such as:

- Safety
- Electromagnetic Compatibility (EMC)
- Efficient use of the radio frequency spectrum
- Additional requirements for some specified reasons, applicable only by a specific Commission Decision

The interpretation in technical terms is described in the Harmonized Standards. These are drafted on the basis of mandates from the European Commission (EC) given to the European Telecommunications Standards Institute (ETSI) and the European Committee for Electrotechnical Standardization (CENELEC). However, the Harmonized Standards are not the only possible interpretation of the essential requirements. With the help of a third party, the so-called Notified Body, a manufacturer can also apply other, equivalent specifications, standards and test methods. The role of the Notified Body is to act as a consultant. The manufacturer always carries full responsibility for equipment and procedures.

The manufacturer can independently carry out full conformity assessments. The only exception is when the Harmonized Standards route is not taken, as described above. The manufacturers are allowed to perform the necessary tests in their own laboratory or in an outside laboratory. The Directive does not demand the laboratories used to be accredited, but since the manufacturer always carries full responsibility, the use of accredited laboratories is often favored.

EU directives and national restrictions

There is a dilemma in that while there should be EU wide recognition of conformity assessment, the use of radio frequencies is not harmonized within the EU. Thus placing equipment on the market and taking it into use are two different things. The requirements for conformity assessment are a set of parameters (contained in the Harmonized Standards or other equivalent specifications), which are the same for all EU states – and complying with these is a condition.

EU manufacturers need to ensure that all equipment placed on the market complies with R&TTE Directive 1999/5/EC.

Radiosondes, among all other radio equipment, need to meet EU Directive 1999/5/EC on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity. The Vaisala RS92 Radiosonde family complies with this requirement through an EU harmonized standard.

The EU harmonized standard for radiosonde transmitters is a European Telecommunications Standards Institute (ETSI) standard, EN 302 054. This harmonized standard, prepared by ETSI on the basis of a mandate from the European Commission, represents a common interpretation of the essential requirements by the standardization community. The EN 302 054 standard covers radiosonde transmitters with digital transmission.

Because there are no EU harmonized standards for analog radiosonde transmitters, the placing on the EU market of any new analog transmitter would require the involvement of a Notified Body, whose task is to define the manufacturer test specifications, to fulfill the essential requirements of the R&TTE Directive. General technical development promotes digital transmissions, which comply with the International Telecommunication Union (ITU) recommendations to improve the radio frequency characteristics of radiosonde transmitters.

The development of the standard for the 1680 MHz radiosonde transmitter is currently in progress in ETSI, and is expected to be harmonized in 2006.
for placing equipment on the market. When taking equipment into use, the manufacturer is obliged to inform the user of national restrictions.

To enable the manufacturers to give such information, national frequency authorities have the obligation to publish information on national frequency usage. On the basis of this, the EC has drawn up a simple classification system for equipment. Radio equipment for which usage is harmonized in the EU belongs to Class 1. Others, not belonging to Class 1, belong to Class 2. For these, the final step in placing equipment on the market is to notify the national frequency authorities of the countries in question about this intention. The notification contains information that is necessary to evaluate whether the equipment really complies with national frequency restrictions.

Apart from stipulations for the conformity assessment of the technical requirements, the Directive defines a marking system, where, in addition to the CE mark, the four digit number(s) of the notified body or bodies should be included. For all Class 2 cases this should be followed by the alert symbol. Additionally, each product should carry a short Declaration of Conformity (in English: Hereby, [Name of manufacturer], declares that this [type of equipment] is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC). This comes in all the official languages of the EU states and includes a contact address where the complete original document is available, e.g. a web address. Restrictions on taking equipment into use must be explained in the user manual and on the packaging.

Typhoon Surveillance in Northwestern Pacific

An international research program investigating typhoons in the Northwestern Pacific utilizes Vaisala RD93 dropsondes to improve data provision and quality.

Dropwindsonde Observations for Typhoon Surveillance near the Taiwan Region, i.e. DOTSTAR, is an international research program conducted by meteorologists in Taiwan. It is carried out in cooperation with scientists at the Hurricane Research Division (HRD) and the National Centers for Environmental Prediction (NCEP) of the National Oceanic and Atmospheric Administration (NOAA).

The program is based on successful surveillance missions conducted in the Atlantic with NOAA’s Gulfstream-IV jet aircraft. Vaisala RD93 GPS dropsondes are released from an Astra jet aircraft flying above 42000 ft (12.8 km) in and around tropical cyclones approaching Taiwan. Information from the surveillance flights is transmitted in nearly real-time to the Central

The Astra SPX jet releasing a dropsonde (circled) during a test flight in March, 2003.