

## QVoice leads the pack in PATENTS:

- **Unique in so many ways ...**
- **It really is 'innovation in action'**

Ascom has been the front-runner of introducing pioneering technology since the first system was delivered in 1993. And, to maintain this know-how leadership, heavy investments are made in QVoice research, development and engineering. As a result our customers are always assured of having the '**best innovative tool**' available for **mobile network testing**.

These innovations have intellectual property value and are protected by **numerous granted international patents**. **Also, almost two dozen additional patents** relating to network data acquisition and analysis technologies have been applied for in Europe, USA and Asia; and have received, already been granted or are pending approval registration.

Below is a brief description of four important QVoice granted patents

### **EP 0 644 674 B1 – Speech Quality Methodology**

This was one of the very first patents on the methodology of testing speech quality in a mobile network. It describes the use of **real human speech**, the **construction** of a scientifically designed speech sample, the **measured values** in speech quality tests, and the method of subsequent **evaluation** of the transmitted / degraded speech sample.

Hence, this formed the basis of QVoice speech testing and made QVoice into the world's first and leading authority on real speech quality in mobile networks.

This patent is valid in most European countries (Germany, Switzerland, France, Spain, UK, Italy etc.) and the USA.

### **EP 1 208 709 B1 – Database/Analysis of Measurement Data**

This patent covers the organisation of a **database** for the analysis of measurement data. It shows how the data can be **classified**, the **pre-calculations** done so subsequent access can be made much faster, the **analysis of data around a critical event** (e.g. the layer 3 messages and measurement just before the call was dropped), the display of measurement data etc.

This patent forms the basis of the QVP database, and also the concept of the expert analysis which saves the user enormous amount of time by presenting a pre- analysed view of the most critical events.

This patent is already valid in most European countries (Germany, UK, France, Switzerland etc.), with further countries to come.

### **EP 1 088 300 A1 – Speech Quality Evaluation**

This patent covers the objective method of machine based speech quality evaluation. It describes in detail the use of **psycho-acoustic modelling**, **interval calculation** and **similarity** between reference and degraded speech signals, leading to the presentation of the **MOS** value.

This is the patent on which the PACE family of speech algorithm is based, and it has become the industry standard for real speech evaluation worldwide.

This patent is already valid in most European countries (Germany, Spain, France, Switzerland, UK etc.) plus US, Hong Kong and other countries.

### **EP 0 916 206 A1 – Audio Effects**

This patent covers the analysis of speech signals which is carried by a digital transmission system, including the **frequency components which correspond to a data frame rate**.

This is the basis of the Robotic Voice / Ping Pong analysis in the Special Audible Effect option of QVoice.

This patent is already valid in most European countries (Germany, Switzerland, Italy, France, UK etc.) and also in the USA.

Plus many more granted patents as well as many patent pending