

[ PRODUCT SHEET ]

Product: QVOICE SYMPHONY

The most powerful of the QVoice measurement platforms is designed for the most demanding network testing and optimization requirements



## QVOICE SYMPHONY DATA COLLECTION

A powerful measurement system for the most demanding benchmarking and QoS network testing requirements.

QVoice Symphony construction is modular offering unrestricted configuration freedom and ease to modify when desired. The system boasts an intuitive user interface and flexible hardware platform that can be tailored to every testing scenario. Expandable from 1 to 24 channels/phones/modems, Symphony is a workhorse for drive testing and benchmarking a larger number of networks; or, for simultaneous testing multiple services on a fewer number of networks.

QVoice Symphony measurements are possible on all generations of cellular networks (2G, 2.5G, 3G and 4G). They are organized into two groups:

### Subscriber View

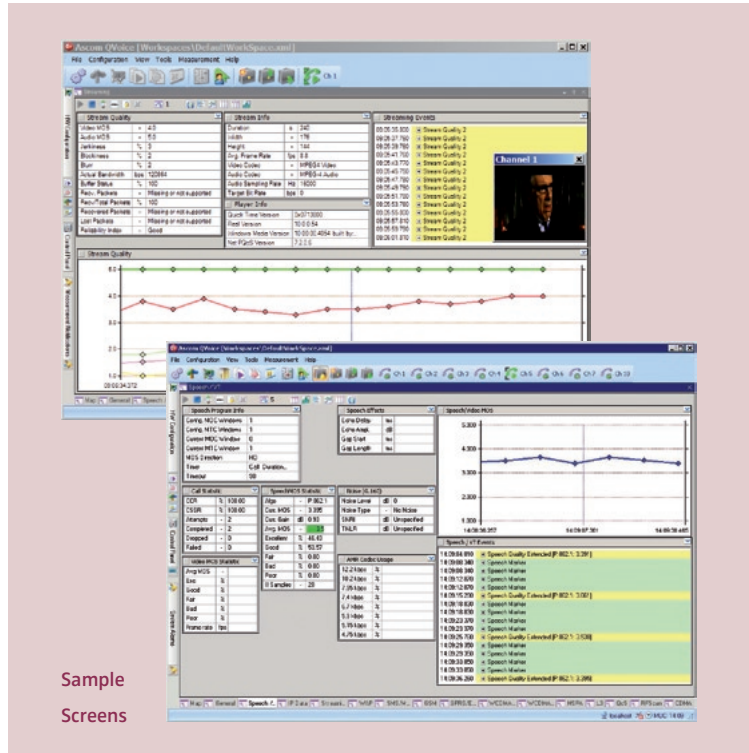
Subscriber experience QoS measurements include real speech and video quality, drop call rates, failed call rates, SMS/MMS/Email success rates and delivery times, FTP/UDP/HTTP throughputs and other IP-Data parameters.

### Engineering View

delivers detailed air interface information like signal strength, signal quality, interference, serving/neighbor cells, layer 3 messages and additional measurements, invaluable in trouble shooting and network optimization.



QVoice Symphony with Tablet PC (GUI)



Sample Screens

### QoS Measurements

**Mobile speech call test** parameters are user defined and can be MOC, MTC, MOC/MTC mixed or mobile-mobile. The speech signal direction can be uplink, downlink or half-duplex. Call duration, retry interval, pauses and other criteria can be pre-programmed.

Important voice benchmarking KPIs are as follows:

- Service Accessibility – percentage of call attempts that fail due to no service
- Call Setup Time – delay time before a call starts ringing
- Retainability – how often are subscribers interrupted by dropped calls
- Voice Quality – a value of voice scores as classified to a vast majority of user (MOS)

**Mobile data tests** assess network performance with respect to transferring data and messages. There are suites of test protocols available for QVoice systems including HTTP, FTP, UDP, WAP, SMS/MMS, PING and Email.

IP-Data KPIs are:

- Service accessibility
- Setup time
- Session time
- Mean data rate
- Data transfer cut-off ratio



MIA (Measurement Interface Adapter) with Nokia N95

### Technical Data Collection Features

- Best algorithms for speech, video, audio testing – industrial and ITU standards
- Video clips on the screen of the mobile device can be captured electronically
- Direct video signal feed into mobile device
- Referenced and unreferenced video algorithms
- Speech MOS values displayed in real time during tests
- Compact measurement data files
- On-line display of AMR codec status
- Video quality MOS algorithm on mobile video applications
- Real speech quality
- In-band audio problem detection with silence, level jump, echo, gaps
- Mobile data tests: FTP, UDP, Ping, HTTP, SMS, MMS, E-Mail
- Mobile application protocol stack (e.g. MMS/WAP)
- Measurement trigger points precisely defined per ETSI
- Protocol messages recorded with air interface layer 3 data
- Combined test mobile phone and scanner measurements
- Subscriber view of QoS in uplink and downlink
- Simulation of subscriber behavior
- Live recording and call statistics
- Detailed decoding of engineering data: layer 3, RLC/MAC messages
- Measurements over different air interfaces: GSM, GPRS, HSCSD, WCDMA
- Supports latest technologies: HSDPA/HSUPA, WiMax (4G), Mobile TV (DVB-H), CDMA EV-DO
- GPRS/EDGE transmission specific data: TBF usage, QoS fulfillment, time used/time wasted.

### Devices supported

A wide range of Testphones used for all type of tests, including Speech and Video Telephony and all type of Data tests.

Covering different Technologies : GSM, GPRS, EDGE, WCDMA, HSDPA, CDMA1X, EVDO ... in multi-frequency band.

Datacards and USB-modem typically used for for testing IP-based services are also available for different technologies and frequencies.

Scanner Receivers for RF-coverage and interference analysis in multi-band and frequencies versions optimised for e.g. Europe, Americas, etc.

### Special System Attributes

**Indoor support** – Indoor floor plans can be used and direct display trace values added. The actual position of the measurement can be set via the pen by the measurement operator.

**Remote GUI** – Problem solving via 'Remote GUI' access from the office.

