# VoIP Testing Methods

**Course No.**: 1311  
**Type**: Training  
**Duration**: 2 Days

## Course Overview:
In this seminar we shall discuss the challenges over the IP network, impairments sources and QoS issues. You will learn the main testing standards to evaluate Voice quality. Furthermore we shall find out the main causes for quality degradation over the IP network. In this seminar we shall explore different testing methods: Passive and proactive approaches. In this seminar we shall provide demonstrations for VoIP testing methods and present the Predictive Environment concept for real network simulation.

## Who should attend?
QA Engineers, software developer, Technical support and field engineers.

## Prerequisites:
Basic knowledge of IP Networks and Basic Telephony.

## Course Content:

### Day 1

1. **Network Impairments**
   - Network Impairments description
   - The sources of network Impairments
   - Correlation between the Impairments

2. **QoS challenges for VoIP**
   - The need for QoS
   - Solutions to provide QoS
   - QoS requirements for Triple-Play

3. **Demo for QoS tests**
   - Packet Loss
   - Packet Miss-order
   - Jitter and Interarrival delay
   - Duplicate packets

4. **Voice degradation over IP Networks**
   - Voice quality and Distortion phenomenon
   - Infrastructure factors
   - IP Network considerations
   - Compression effects

5. **Performance and Traffic factor**
   - Traffic considerations and calculation models
   - Bandwidth calculations
   - Erlang and Bandwidth correlation
   - Calculations examples

6. **What should be tested?**
   - Testing milestones for deployment process
   - Vital parameters to be tested

### Day 2

7. **Predictive Environment for reliable tests**
   - What is Predictive Environment?
   - Network testing problems and needs
   - Predictive environment profile
   - Required features
   - Network Impairments recording
   - Required Statistics

8. **Stress tests for performance evaluation**
   - Understanding the types of Challenges
   - What should be tested?
   - Stress tests
   - Performance versus quality

9. **Demo for Performance tests**
   - VoIP Simulator and setup process
   - VoIP Stress tests
   - Results analysis

10. **Objective Voice quality measurements methods**
    - About objective speech measurement
    - Speech measurement methods: PSQM, PSQM+, PAMS, PESQ, E-Model

11. **VoIP Troubleshooting methods**
    - Possible congestion sources
    - How to locate these sources
    - How to avoid Congestion phenomenon

12. **Optimization procedure**
    - Correlation between degradation’s causes
    - What is optimization procedure?
    - How to implement it?
    - Examples

13. **Demo for Voice quality tests**
    - Voice quality tests
    - PAMS and PESQ
    - Insertion Loss and Return Loss
    - Background Noise

14. **Summary**