

BTL-FTS-007 Femtocell Test Software & Pilot Production System

Introduction

Benetel has developed production test software to test femtocell products with a range of test profile options such as UMTS, CDMA2000 and GSM. The software is a lite version of Benetel's Common Test Platform (version 7) and is capable of device calibration and RF test. When combined with a signal generator, a signal analyzer and a simple RF enclosure the system is sufficient for NPI and pilot production requirements. As volume requirements increase the software provides a platform to employ Benetel's high volume parallel test system such as BTS-110RS.

Product Features

The UMTS band 1 version of the production test software, FTS-07-001, has been written to control a R&S®SMBV100A vector signal generator, a R&S®FSV signal and spectrum analyzer and a PicoChip reference board. The software is written in National Instruments' LabVIEW and TestStand, provided as executable code but with flexibility for user modification and development. For example, an interface is provided to replace the PicoChip device driver with a user specific device driver. The software has been configured to perform the following set of standard tests for UMTS bands and HSDPA:

User Management

- Graphical user interface
- Test limit management
- Test sequencer

Basic Functionality Tests

- Record UUT serial number
- Date and time stamp

Receiver tests

- RX Calibration
- NF
- RSSI
- Sensitivity

Transmitter Tests

- PA Calibration
- Output Power
- EVM/ Rho
- ACLR
- PCDE
- Frequency error
- Occupied Bandwidth
- Spectrum emission mask

Upgrade Path to Mass Production

Benetel can provide an upgrade path to high volume production utilizing the same R&S® test equipment. By providing a parallel test solution one test rack can provide test capacity in the region of 20K/month. The upgrade involves upgrading the software for parallel sequencing, diagnostic testing and automatic fixture control. Additional features include over the air testing, final functional test and auto calibration. A platform is already available for UMTS/ HSDPA and CDMA2000 (1XEVD0) with WiMax and LTE planned later in 2010. The platform approach minimises customization which enables Benetel to provide a test solution quickly and cost effectively. Our mass production test focus is on maximizing throughput while improving overall test system reliability. Unit test costs are reduced to a maintainable, steady level which leads to a reduced cost base in the test department and a shorter lead time to market.

Recommended Test Equipment

Benetel utilise the R&S®SMBV100A vector signal generator and R&S®FSV signal and spectrum analyser. Both units meet the requirements of volume production and offer an excellent price/ performance ratio.



R&S®SMBV100A Vector Signal Generator



R&S®FSV signal and spectrum analyzer

The R&S®SMBV100A has the capability to test UMTS, CDMA2000, WiMAX and LTE. The R&S®FSV is up to five times faster than signal analysers of the same class. The test instruments are based on Rohde & Schwarz scalable multi-standard platforms enabling Benetel to offer a multi-standard femtocell test solution.

About Benetel

Benetel are wireless test experts with in-house RF and wireless design expertise. We follow emerging wireless standards and team up with technology innovators in order to supply test expertise for all stages of the product life cycle, from R&D to mass production. We aim to provide world beating RF test times in all that we do.

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