HIGHLIGHTING

W-CDMA

Application Software MobiDemo

MobiDemo is an application software for controlling a combination of Generator SMIQ and Analyzer FSE/FSE-B7. MobiDemo offers a convenient user interface to facilitate testing of components used in digital mobile radio systems, for instance amplifiers or filters. The software can handle the PHS, IRIDIUM, IS-95 and W-CDMA standards. The corresponding test signals can be activated on SMIQ with a few keystrokes and mouse clicks. FSE is set up in accordance with SMIQ and analyzes signals in the modulation analysis or adjacent-channel power measurement mode.

The settings for SMIQ and FSE are transferred via the IEC/IEEE bus.

The following instruments equipped with the indicated options are suitable:

Generators:
- SMIQ02 + SMIQB10 + SMIQB11 + SMIQB42
- SMIQ03 + SMIQB10 + SMIQB11 + SMIQB42

Analyzers:
- FSEA20/30 + FSE-B7 (+ FSE-B15 + FSE-B17)
- FSEB20/30 + FSE-B7 (+ FSE-B15 + FSE-B17)
- FSEM20/30 + FSE-B7 (+ FSE-B15 + FSE-B17)
- FSEK20/30 + FSE-B7 (+ FSE-B15 + FSE-B17)

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The program runs under Windows 3.1 as well as Windows 95 or Windows NT. It can also be operated on the controller function of FSE (provided that options FSE-B15 and FSE-B17 are fitted).

The software is supplied with an operating manual in PDF (Acrobat Reader) format.

Software features

MobiDemo offers a straightforward user interface for the generation and analysis of digital mobile radio signals by means of a combination of Vector Signal Generator SMIQ and Spectrum/ Vector Signal Analyzer FSE/FSE-B7.

The software can handle the following mobile radio standards:

- **PHS** (Personal Handy Phone System)
- **IS-95** (Qualcomm CDMA)
- **IRIDIUM** (digital satellite mobile radio standard)
- **W-CDMA** (wideband CDMA)

FSE performs digital modulation analysis with various selectable display modes as well as adjacent-channel power measurements.

For standard W-CDMA, the MobiDemo software allows adjacent-channel power measurement by means of automatic test sequences utilizing the FSE dynamic range to the full. Test curves can be displayed on the PC and output on a printer.

Settings for the different standards can be stored and loaded.

An info line (TIP) at the bottom of the screen provides information on Mobi-Demo softkeys and display fields during the program.

Hardware and software requirements

Controller hardware
The program runs on any IBM-AT-compatible PC.
CPU: 486 or better, >100 MHz
RAM: >16 Mbyte (for Windows NT >32 Mbyte)

GPIB: Rohde & Schwarz IEEE 488.2 Bus Interface PS-B4, 1006.6207.04 or National Instruments AT GPIB/TNT.

Controller software
The program runs under Windows 3.1 as well as Windows 95 or Windows NT. It can also be operated on the controller function of FSE (provided that options FSE-B15 and FSE-B17 are fitted). Moreover, the GPIB (IEC/IEEE)-bus drivers for Windows from National Instruments are required.

SMIQ requirements
Models SMIQ 02/03 equipped with the following minimum of options are suitable: SMIQB10, SMIQB11 and SMIQB42 (the latter is only needed if IS-95 signals are to be generated).

Models SMIQ 02E/03E (with options same as above) are not suitable for generating W-CDMA signals. PHS, IRIDIUM and IS-95 signals can be generated, on the other hand.
Software version: 3.61IQ or higher.

FSE requirements
The following FSE models are suitable: FSEA 20/30, FSEB 20/30, FSEM 20/ 30, FSEK 20/30. FSE must be fitted with optional Vector Signal Analyzer FSE-B7. If the program is to be run on FSE itself, options FSE-B15 and FSE-B17 are also required.
Software version: 1.65 or higher.

Installing the software

MobiDemo Application Software is available as a self-extracting .EXE file.

When MOBIDEM_.EXE is started, the subdirectories Disk1 and Disk2 with the associated files are generated in the selected directory (default: c:\MobiDemo\Install).

Installation from hard disk
To install MobiDemo from the hard disk, use the file manager and call up SETUP.EXE from the Disk1 directory. The program and some files for SMIQ data and control lists for special standards are installed on the PC. To continue, follow the instructions of the setup program.

Installation by means of disks
Two disks are needed. To generate installation disks, copy the contents of the Disk1 directory onto disk No. 1 and the contents of the Disk2 directory onto disk No. 2.

To install MobiDemo from the disks, insert disk No. 1 into the disk drive and execute a: SETUP.EXE using the Windows file manager. The program and some files for SMIQ data and control lists for special standards are installed on the PC. To continue, follow the instructions of the setup program.

Starting the program

The program is started by executing MOBIDEMO.EXE. To do so, click the MobiDemo icon in Windows 3.X, for example.
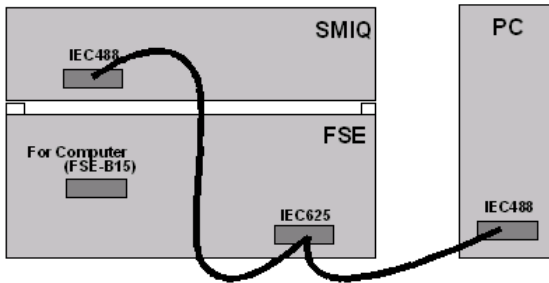
Test setup

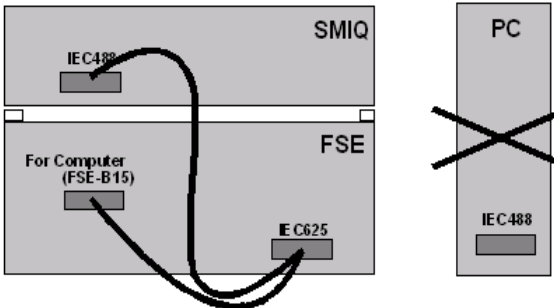The DUT is connected between the generator output and the analyzer input:
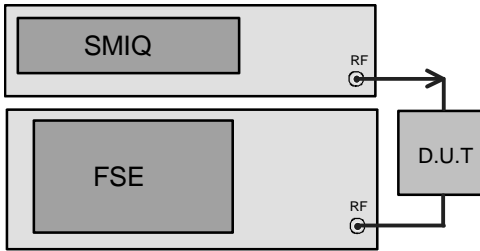
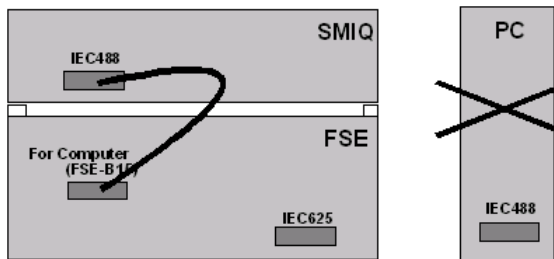## Connecting the controller to the instruments

Depending on the configuration, connect IEC/IEEE-bus cables as shown below. The following configurations are possible:

MobiDemo runs on an external PC.

MobiDemo uses controller function of FSE with control of FSE via IEC/IEEE-bus interface.

MobiDemo uses controller function of FSE with internal control via a DDE interface.

Getting started

As an example, EVM (error vector magnitude) measurement of a PHS signal (Downlink TCH Frame) with synchronization of FSE to the Unique Word is described. For this measurement, connect the generator output with the analyzer input.
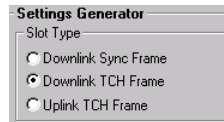
- Click on Go to Remote both in the Settings Generator field and the Settings Analyzer field.
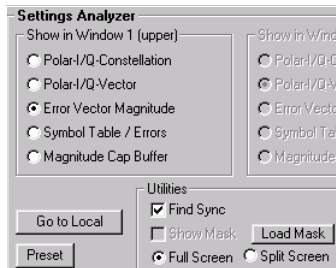

- The digital PHS standard is active as default setting.
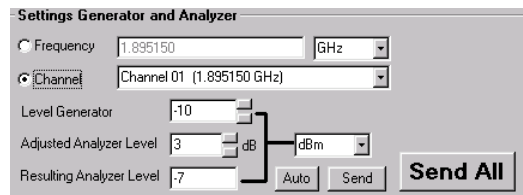

- Click on slot type Downlink TCH Frame.

- Settings Analyzer field:
  Click on Error Vector Magnitude and Find Sync.

- The correct frequency and level are already preset on SMIQ and FSE. With SEND ALL, all data are transferred to the two instruments.

On FSE, the following graphic display appears, for example: (if MobiDemo is run on FSE, switch to normal FSE display by pressing Alt + Print Scrn).
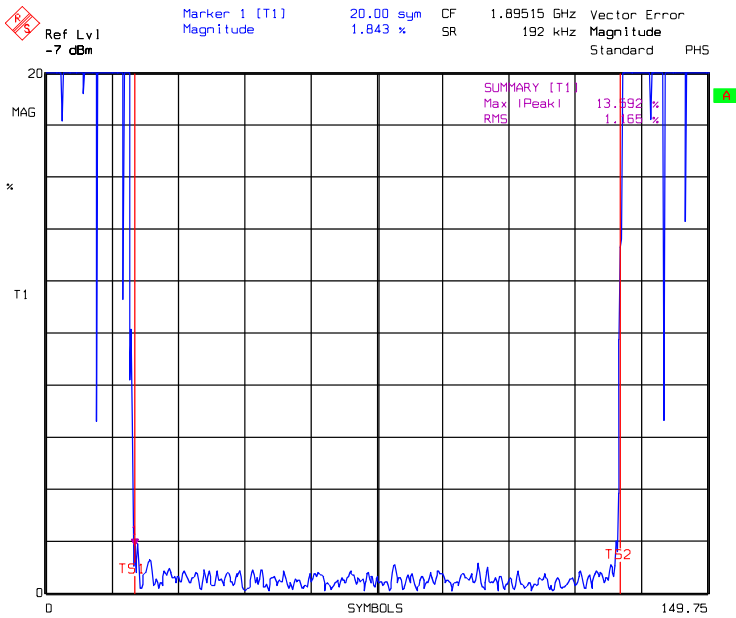
FSE display of error vector magnitude for PHS standard

TS1 and TS2 are search limits marking the burst section (symbol No. 20 to symbol No. 130) for which the summary marker values Max |Peak| and rms value of the error vector magnitude are determined.

Ordering Information

Vector Signal Generator

SMIQ02	(300 kHz to 2.2 GHz)	1084.8004.02
SMIQ03	(300 kHz to 3.3 GHz)	1084.8004.03

Options required for SMIQ

SMIQB10	Modulation Coder	1085.5009.02
SMIQB11	Data Generator	1085.4502.02

Standard IS-95 only

SMIQB42	IS-95 CDMA	1104.7036.02

Spectrum Analyzer

FSEA20	(9 kHz to 3.5 GHz)	1065.6000.20
FSEA30	(20 Hz to 3.5 GHz)	1065.6000.30
FSEB20	(9 kHz to 7.0 GHz)	1066.3010.20
FSEB30	(20 Hz to 7.0 GHz)	1066.3010.30
FSEM20	(9 kHz to 26.5 GHz)	1080.1505.20
FSEM30	(20 Hz to 26.5 GHz)	1079.8500.30
FSEK20	(9 kHz to 40 GHz)	1088.1491.20
FSEK30	(20 Hz to 40 GHz)	1088.3494.30

Options required for FSE

FSE-B7	Vector Signal Analyzer	1066.4317.02

Options required for MobiDemo to run on FSE

FSE-B15	Controller Function for FSE	1073.5696.03
FSE-B17	2nd IEC/IEEE-bus Interface	1066.4017.02

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