EMI Software R&S ES-K1

for fast, accurate and reproducible measurements

- ◆ User-friendly EMI test software under Windows
- ◆ EMI measurements to commercial and military standards such as CISPR, VDE, FCC, EACL, ANSI, EN, MIL, VG, DEF-STAN, GAM-EG13
- ◆ Flexible adaptation to other standards

- ◆ Fully automatic and interactive operation for maximum speed, reproducibility and user friendliness
- ◆ Automatic compensation of transducers (correction factors) and limit lines
- ◆ Evaluation of narrowband/broadband interference

- ◆ Test setup calibration
- ◆ Convenient and flexible result documentation
- ◆ Easy expandability for future system applications due to modular design

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Applications

EMI Software R&S ES-K1 is an advanced, user-friendly tool that makes the measurement of all conducted and radiated emissions highly efficient.

The number of measurements required for ensuring electromagnetic compatibility is steadily increasing, as is the demand for measurements that are reliable, reproducible and economical.

EMI Software R&S ES-K1 satisfies this growing demand for measurements in compliance with international commercial standards (CISPR, EN, ANSI, SAE, FCC, EACL, VDE) as well as military standards (MIL, VG, DEF-STAN, GAM-EG13). Adaptation to other standards is also possible.
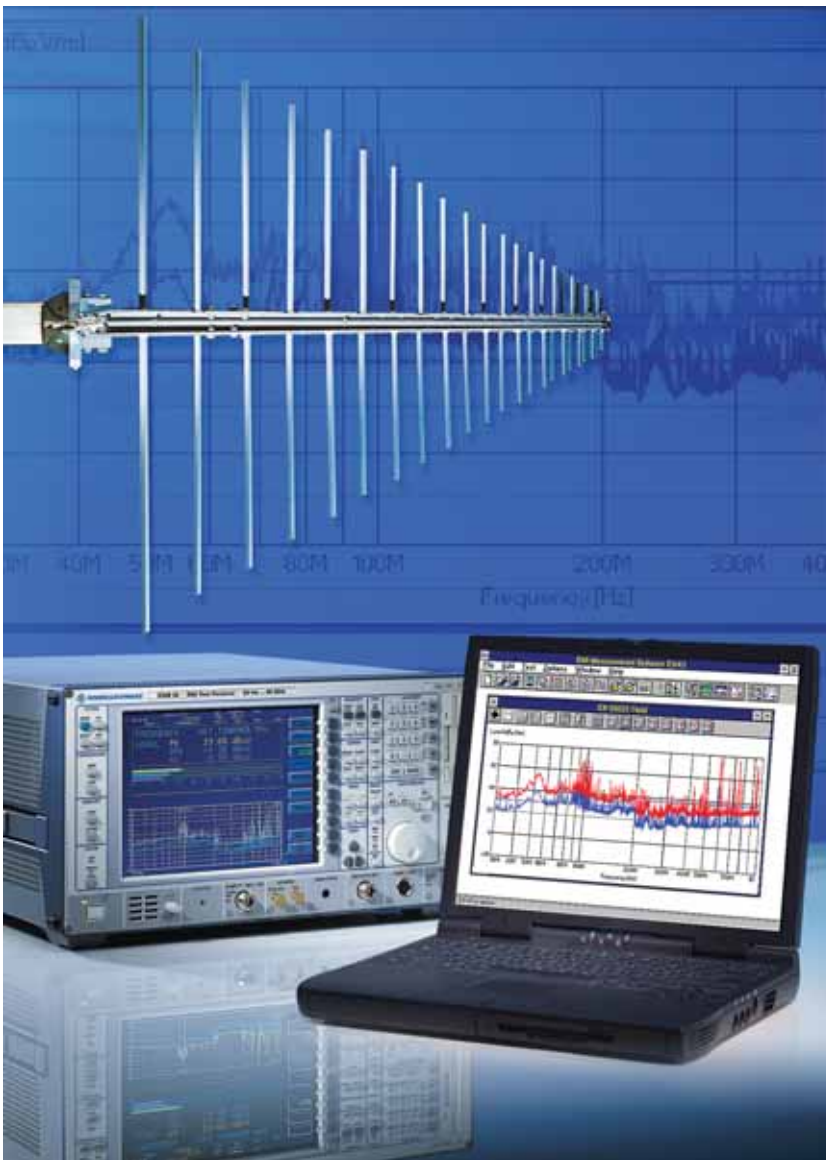
Commercial EMI measurement standards stipulate a variety of regulations and limit values for RFI voltage, RFI power and RFI field strength whereas the military standards specify measurements and limit values for conducted and radiated emissions.

The powerful EMI Software R&S ES-K1 is suitable for both fields of application.

EMI Test Receiver R&S ESIB26/40 operated via EMI Software R&S ES-K1

Fully automatic operation supported by the Rohde & Schwarz EMI test receivers and a large number of accessories such as mast, turntable, absorbing clamp/slideway and artificial mains networks make even complex EMI measurements reliable and fast over a wide frequency range. The interactive mode lets operators utilize their experience to the full and identify and catalog signals in open-field measurements, for example.

The software under Windows affords ease of access to the program. The user-friendly graphical interface allows the operator to concentrate on the measurement task. Informative documentation of results in graphic and tabular form along with the associated measurement configuration can be produced using the flexible features for report generation.

Characteristics

User interface
In addition to the menu items FILE, EDIT, WINDOW and HELP common for Windows applications, the EMI Software R&S ES-K1 can be controlled via two additional menus.

In the OPTIONS/DEVICE CONFIGURATION menu, the user needs to define the device configuration only once, i.e. test receiver and accessories. The language, e.g. German or English, can also be selected.

The TEST menu is provided for interactive adjustment and control of the individual devices. The automatic test sequences which are script-defined (see opposite page) are started in this menu. In addition, a variety of test and analysis functions is available.

The FILE menu provides import and export functions for exchanging data within a user group. Furthermore, the complete software configuration can be stored.

Flexibility based on scripts

In addition to the scan, sweep and measurement functions, scripts – test sequences in a macro language – allow fully automatic or interactive control as required. A set of user-defined script parameters controls the test sequence and the generation of reports.

In addition to standard scripts, user-specific scripts can be generated and existing scripts modified with the aid of the R&S ES-K2 option, thus allowing each user to integrate specific know-how into the measurement in an optimum manner. Effective debug and further test facilities are also available.

Efficiency through data reduction

As a linking element between the scan or sweep function for preview of the spectrum on the one side and measurement at discrete frequencies on the other, EMI Software R&S ES-K1 offers a wide selection of data reduction methods. The most important evaluation methods are:

◆ Acceptance analysis, subrange maximum and minimum determination
◆ Peak and maximum analysis
◆ Narrowband/broadband discrimination using tuning and peak/average comparison methods

Furthermore it is possible to combine test results, read out broadband interference to MIL in a display (/1 MHz) or suppress known environmental interference by means of a frequency list, e.g. for measurements in open-field sites.
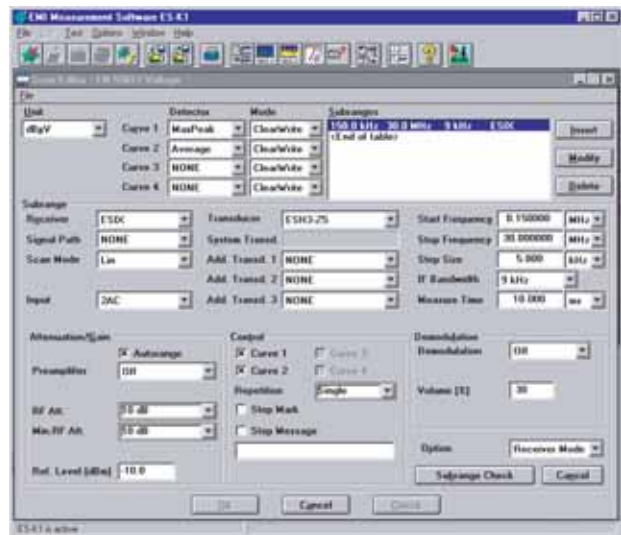
Integrated database

EMI measurements require the generation and processing of a large variety of data: transducer factors, limit lines, scan and sweep data as well as results in graphic and tabular form and test reports for documentation.
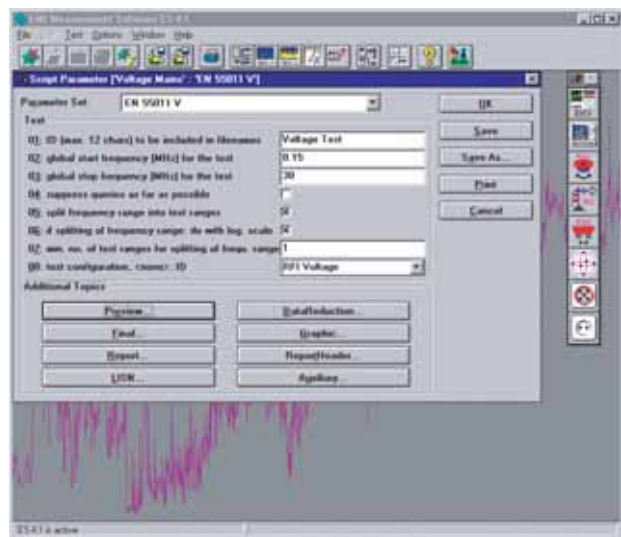

EMI Software R&S ES-K1 enables direct control of individual instruments.
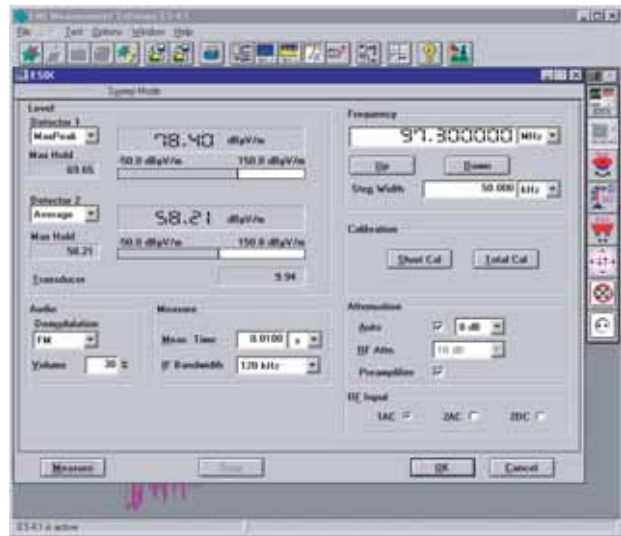
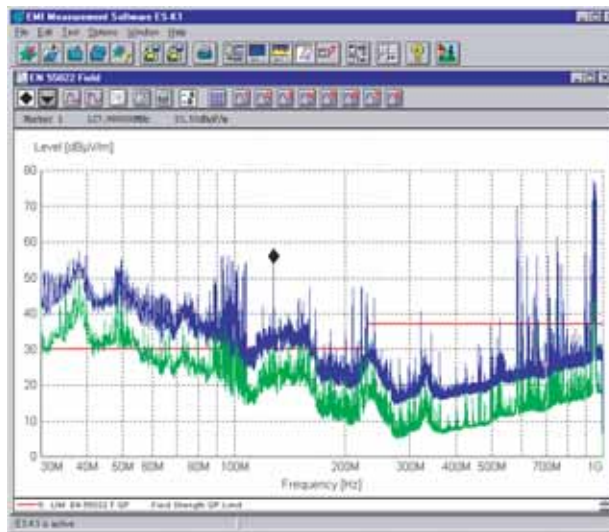*The measurement parameters for frequency subranges can additionally be optimized in standard preset scan tables.*

Standard parameter configuration enables standard-compliant measurement with flexible scripts.
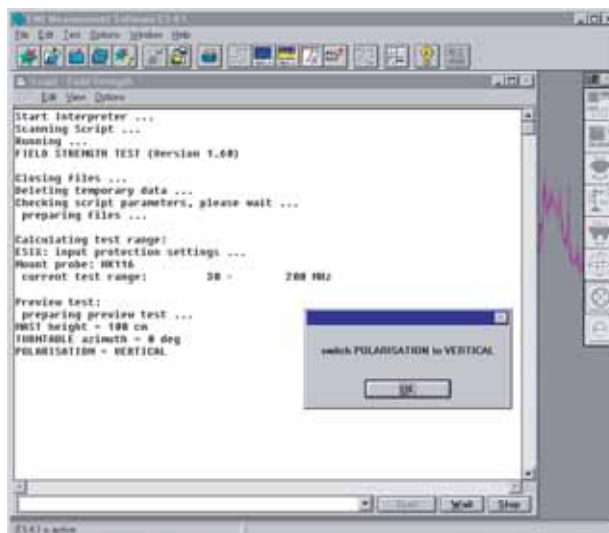
A database for data management is integrated into EMI Software R&S ES-K1. This enables convenient data access by means of concise short descriptions, thus doing away with cumbersome file searching.

Special input masks, e.g. for generating transducer factors and limit lines, can be used for extending the data records supplied. Major standards are covered by factory-ready scripts to allow fast and easy use of EMI Software R&S ES-K1.

The frequency spectrums for two or more (depending on receiver type) different detectors measuring in parallel are shown simultaneously.

Result display

Versatile and flexible display of results is possible in tabular or graphic form. A maximum of eight test results, limit lines and transducer factors can be displayed simultaneously – even in different windows – with linear or logarithmic scaling of the frequency axis. The shape, line type and colour of the traces can be adapted optimally to requirements.

There are two mouse-controlled markers for interactive graphic evaluation. The zoom function allows enlargement of the result display to any size.

Even complex EMI measurements can be performed using fully automated scripts, thus reducing time and cost.

Report configuration

The integrated report configuration function allows the user to customize the format of a test report to a large extent. In addition to the report header, all data relevant to the measurement can be output, e.g. scan and sweep tables. Test results, limit lines and transducer factors can be output in tabular and graphic form.

When generating reports, users can also view the log file prior to printing by means of PRINT REVIEW. In addition, graphics and tables as well as rtf (Rich Text Format) files can be saved. Users can also take advantage of the customization

feature with which a familiar word processing program (e.g. Word for Windows) can be used to insert graphics, tables, or measurement result lists wherever appropriate.

The report can be output on any printer supported by Windows.

Receivers and accessories

EMI Software R&S ES-K1 supports all EMI test receivers and spectrum analyzers from Rohde & Schwarz: the Test Receiver Family R&S ESHS, R&S ESVS, R&S ESPC, R&S ESCS and R&S ESS, the spectrum-analyzer-based EMI Test Receivers R&S ESAI, R&S ESBI and R&S ESMI (up to 26.5 GHz), as well as the R&S ESIB7, R&S ESIB26 and R&S ESIB40 (up to 40 GHz) and the Test Receivers R&S ESPI3 and R&S ESPI7.

Various drivers are available for accessories such as:

◆ Mast and turntable system for the measurement of RFI field strength
◆ Artificial mains networks and absorbing clamps/slideways for the measurement of conducted emissions
◆ Matrix for switching antennas and transducers

Interactive dialog windows are displayed during script processing, e.g. for manual control of accessories that cannot be remote-controlled.
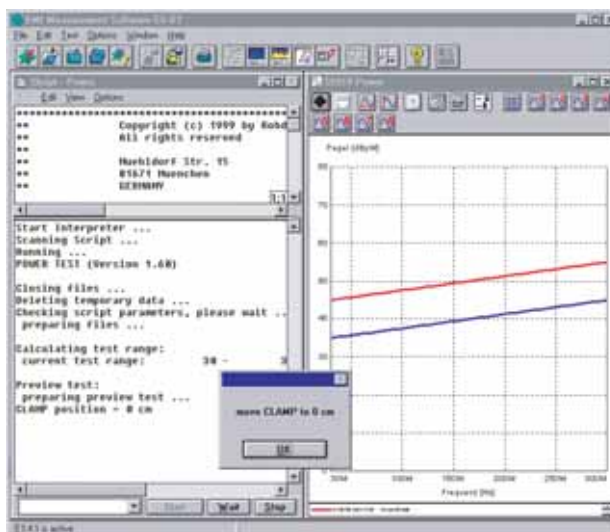
General data

Requirements	
PC fully compatible with Windows with a minimum of 16 Mbyte RAM (NT 4.0, 32 Mbyte)	
Windows 3.1/3.11/95/98SE	
Windows 2000/ME/XP[1]	
Minimum memory requirement on hard disk 32 Mbyte	
IEC/IEEE bus interface with Windows driver (DLL), compatible with National Instruments	

[1]   Planned availability – September 2002.

Ordering information

EMI Software[1]	R&S ES-K1	1026.6790.02
Script Development Kit	R&S ES-K2	1026.6890.02
Drivers for Test Receivers and Spectrum Analyzers		
R&S ESHS/ESVS/ESVD/ESPC/ESCS	R&S ES-K10	1026.6948.02
R&S ESS	R&S ES-K11	1026.7096.02
R&S ESAI/ESBI/ESMI	R&S ES-K12	1026.7144.02
R&S ESIB7/ESIB26/ESIB40	R&S ES-K16	1108.0288.02
R&S ESPI3/ESPI7	R&S ES-K18	1140.5298.02
Drivers for accessories		
Schäfer Mast and Turntable	R&S ES-K30	1026.7196.02
Schäfer MDS Absorbing Clamp/ Slideway	R&S ES-K31	1026.7921.02
EMCO Controller/Mast/Turntable 1050/1060/1090	R&S ES-K32	1062.3697.02
Deisel Mast and Turntable HD-MA2xx and HD-DT3xx	R&S ES-K33	1035.1097.02
Deisel MDS Absorbing Clamp/ Slideway	R&S ES-K34	1035.1197.02
EMCO MT/TT Controller 2090 and SUNOL Controller SC9xV	R&S ES-K40	1140.4591.02
IEC/IEEE Bus	R&S ES-K50	1057.2496.02
Multi-User Licence	R&S ES-K100	1057.0741.02

[1]   Windows program with driver for V Networks R&S ESH2-Z5, R&S ESH3-Z5 and R&S ENV 4200 as well as for Relay Matrices R&S RSP, R&S PSU, R&S RSU and R&S PSN.

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