

SCHWARZBECK MESS - ELEKTRONIK

An der Klinge 29 D-69250 Schönau Tel.: 06228/1001 Fax.: (49)6228/1003

RecTest-Software zur Durchführung der Pulsbewertung und Selektionskurven-Tests unter MS-WINDOWS NT/2000/XP

RecTest software for pulse weighting and the overall selectivity tests under MS-WINDOWS NT/2000/XP

Durchführung der Messempfänger-Tests nach CISPR 16-1-1 wie Impulsbewertung und Selektionskurve.

Darstellung der Testergebnisse in benutzerfreundlicher Form.

Skalierbare Druckausgabe.

Datentransfer in andere Windows-Anwendungen für die Weiterverarbeitung.

Möglichkeit die Test-Protokolle durch Kommentare zu gestalten.

Möglichkeit zur Einbindung von neuen Signalgeneratoren Messempfängern und Impulsgeneratoren. Auf Wunsch kann die Einbindung durch Schwarzbeck Mess-Elektronik vorgenommen werden. Zur Zeit sind folgende Geräte implementiert: Signalgeneratoren: Agilent ESG3000, R&S SMIQ03B, R&S SML03, R&S SMP02, HP 8657B, Marconi 2022E
Messempfänger: Schwarzbeck FCKL 1528, FCVU 1534, FCLE 1535, VUMA 1524, VUMA 1521, FMLK 1518, R&S ESVP, FSP40, ESU8.
Impulsgeneratoren: Schwarzbeck IGUU 2916.

Individuell definierbare Frequenz/Pegel Sequenzen für den Impulsgenerator IGUU.

Möglichkeit zur manuellen Steuerung von Signal und Impulsgeneratoren.

Vergleich von zwei unterschiedlichen Messergebnissen.

Steuerung der Geräte über die IEEE 488 Schnittstelle (INES und National Instruments).

Möglichkeit zur Berücksichtigung von Kabeldämpfung, sowie der Korrektur des Frequenzganges des Signal Generators.

Möglichkeit zur Definition von Pegeln, die auf der Selektionskurve farblich hervorgehoben werden.

Kontextsensitive Online-Hilfe.

EMI-receiver tests according to CISPR 16-1-1 like pulse weighting and overall selectivity.

Representation of test results in user friendly format.

Scalable print output.

Data transfer to other Windows applications for further processing.

Possibility to design test protocols with individual comments.

Possibility to integrate new signal generators, EMI-receivers and pulse generators. The software integration can be performed by Schwarzbeck Mess-Elektronik on request. The following equipment is implemented at the moment: Signal Generators: Agilent ESG 3000, R&S SMIQ 03B, R&S SML 03, R&S SMP 02, HP 8657B, Marconi 2022E. EMI-Receiver: Schwarzbeck FCKL 1528, FCVU 1534, FCLE 1535, VUMA 1524, VUMA 1521, FMLK 1518, Rohde & Schwarz ESVP, FSP40, ESU8. Pulse Generators: Schwarzbeck IGUU 2916.

Individually definable frequency/level sequences for the pulse generator IGUU.

Possibility for the manual control of signal and pulse generators.

Possibility to compare two different measurement results.

Equipment control over the IEEE 488 interface (INES or National Instruments).

Possibility to enter cable attenuation and to correct the frequency response of the signal generator.

Possibility to define levels which are represented in colour on the selection curve.

Context sensitive on-line help.

Hardware – Voraussetzungen ***Hardware – Requirements***

IBM-kompatibler PC mit Pentium Prozessor oder besser, VGA-Grafik, min. 10 MByte freie Festplattenkapazität, CD-ROM, INES IEEE 488 32 bit Karte (INES oder National Instruments). Auf Wunsch auch mit PCMCIA-Schnittstelle für tragbare Rechner verfügbar!

IBM-compatible PC with Pentium processor, VGA-Graphics, min. 10 MByte free space on hard disk, CD-ROM, INES IEEE 488 32-bit interface card. PCMCIA-card (INES or National Instruments) also available for portable Computers!

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Arbeitsbereich (Pulsbewertung)

Work area (Pulse weighting)

Schwarzbeck Software for the testing of EMI-Receivers

File Edit Hardware Configuration Run Help

5G 1 2

Company : Schwarzbeck Mess-Elektronik
Department : Software
Operator : Schaffner Sergej
Comments : Test
Date and Time : 04/06/2007 07:20:35 File : Marconi_FCVU_50M.CPR
Parameter of Receiver : FCVU, Band CD, Det. GP, In. Direct, Low Distortion, NORM, Frequency: 50.000 MHz, Number of Periods: 15
Signal Generator/Pulse Generator :
Transducer : No Transducer Source, No Transducer Cable, DB10_2
Sequenzname : CISPR16_1_1_2003_BANDCD

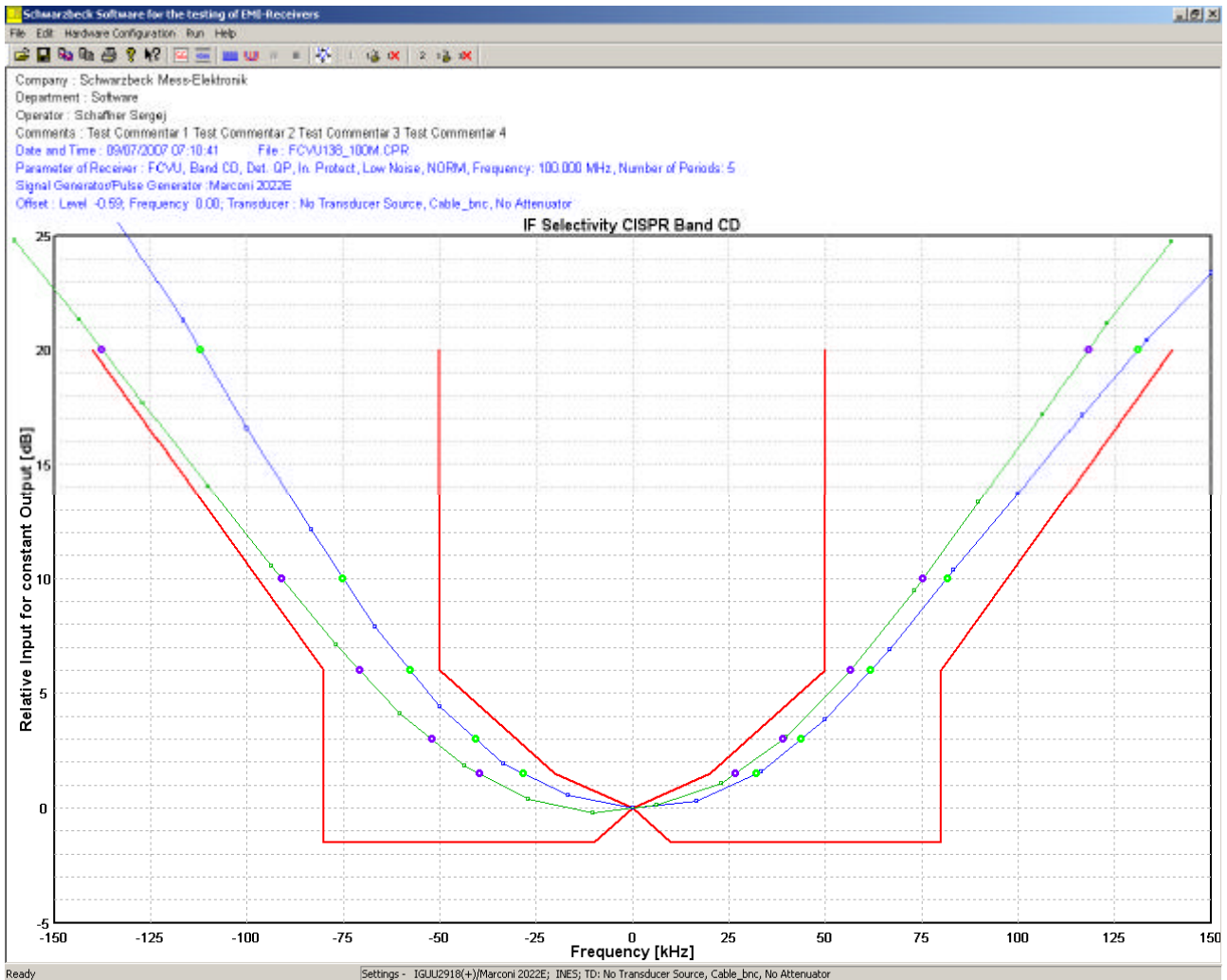
Testresults

Frequency [Hz]	Measured [dB]	Requirement [dB]	Difference [dB]	Weighting
100.0 100.0	+60.40 +60.88	60.01 60.01	-0.38 -0.87	Ref. Ref.
20.0 20.0	+8.80 +8.86	+9.00 +/- 1.00 +9.00 +/- 1.00	+0.21 +0.14	ok ok
10.0 10.0	+13.41 +13.69	+14.00 +/- 1.50 +14.00 +/- 1.50	+0.59 +0.32	ok ok
2.0 2.0	+25.40 +25.76	+26.00 +/- 2.00 +26.00 +/- 2.00	+0.61 +0.24	ok ok
1.0 1.0	+29.35 +30.01	+28.50 +/- 2.00 +28.50 +/- 2.00	-0.85 -1.50	ok ok
0.2 0.2	+31.30 +32.53	+31.50 +/- 2.00 +31.50 +/- 2.00	+0.20 -1.02	ok ok

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Arbeitsbereich (Gesamt-Selektionskurve) Work area (Overall selectivity)



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Hardware-Konfiguration *Hardware Configuration*

The screenshot shows a 'Test-Configuration' dialog box with the following settings:

- Receiver under Test:** Schwarzbeck FCKL (dropdown menu)
- Receiver Settings:** (button)
- Pulse Generator:**
 - IGUU 2916 IGUU 2918
 - IGUU-Sequence for Pulse Weighting Test: CISPR16_1_1_2003_BANDB (dropdown menu)
- Signal Generator:** Marconi 2022E (dropdown menu)
- Transducer:**
 - Source: No Transducer Source (dropdown menu)
 - Cable: Cable_bnc (dropdown menu)
 - Attenuator: No Attenuator (dropdown menu)

Buttons: Cancel, OK

IGUU-Steuerung manuell *IGUU manual control*

The screenshot shows the 'IGUU 2916' manual control dialog box with the following settings:

- MAIN | AUX | SIN** (tabs)
- Main Generator:**
 - Polarity: + -
 - Band: A B C/D
- Aux. Generator:**
 - Band: A B C/D
- Sine Wave Generator:**
 - Frequency: 100 MHz 1 MHz 10 MHz 100 kHz
- Pulse Frequency Range:**
 - 0-20 kHz (1 kHz) 0-200 Hz (1 Hz)
 - 0-2 kHz (10 Hz) 0-20 Hz (0.1 Hz)
- 0** kHz Pulse Frequency
- 40** Amplitude
- GPiB Interface:**
 - National Instruments INES

Buttons: Set Data, LOC, Exit

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Test-Einstellungen Schwarzbeck Messempfänger *Test settings Schwarzbeck EMI-Receiver*

Settings of EMI-Receiver

Receiver: FMLK 9 kHz ... 29,999 MHz

Frequency: 0.1 MHz

Number of Periods: 5

Band: A B CD E

Detectors: QP PK AV

Input: Direct Protect

IF: Low Distortion Low Noise

IF-Bandwidth: Norm 200 Hz 9 kHz 20 kHz 120 kHz 1 MHz

Cancel OK

Test-Einstellungen nicht Schwarzbeck Messempfänger *Test settings non Schwarzbeck EMI-Receiver*

Settings of EMI-Receiver

Receiver: RS P5P4Q

Calibrate

Init

Reset

Copy

Set Frequency: 0.009 MHz

Set Level: 0 dB μ V

Read: 0 dB μ V

Detector: Average Set

Bandwidth: H2200 Set

Input: Set

IF Attenuation: LowNoise Set

Operation Range: Set

Measure Time: 501 Set

Demodulation: Set

SRQ Byte: Number of Periods: 0

Clear Local Set All Cancel OK

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Edit IGUU-Testsequence

Edit test sequence of IGUU

Ref.	Pulse Repetition Frequency	Theoretical Indication	Reading Range	
			Min	Max
100	60	60	60	60
20	53.5	52.5	52.5	54.5
10	50	48.5	48.5	51.5
2	39.5	37.5	37.5	41.5
1	37.5	35.5	35.5	39.5

Beschreibung des Signalgenerators

Description of the signal generator

```
<?xml version="1.0" encoding="UTF-8"?>
<signal_generator name="RS SML03" adress="28">
<frequency head="FREQ " suff="MHZ" min="0.09" max="3300.000"></frequency>
<level head="POW " suff="DBUV" min="-23.0" max="130.0" unit="1"></level>
<calibration comstr="DEFAULT"></calibration>
<reset comstr="*RST;*CLS;OUTPUT ON"></reset>
<init comstr="*RST;*CLS;OUTPUT ON;UNIT:POW DBUV"></init>
<srq srq_use="0" srq_byte=""></srq>
</signal_generator>
```