

Microwave Signal Generator SMR as tracking generator for EMI Test Receiver ESI

The four models of the SMR family of signal sources [1] cover the frequency range up to 20 GHz (SMR 20), 27 GHz (SMR 27), 30 GHz (SMR 30) and 40 GHz (SMR 40). Their primary advantages are compact dimensions in conjunction with very high performance and an extremely attractive price. The EMI test receivers of the ESI family [2] combine the flexibility and speed of spectrum analyzers with the large dynamic range required for standard-compliant EMI measurements. Software FreRes from Rohde & Schwarz ideally couples these two instruments for elaborate RF measurements on active and passive microwave components up to 40 GHz.



FIG 1 Just a few connections make SMR and ESI ready for user-friendly automatic measurements on microwave components up to 40 GHz

FreRes can be downloaded free of charge from the Rohde & Schwarz Internet page (Products & More – Application Notes – file 1MA09).

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Start and stop frequency, level step, input level and display mode (linear/logarithmic) can be freely selected with FreRes software, which runs on PCs under Windows 95/98/NT™. Cable losses can be compensated at either the generator or receiver end, allowing measurement and display of just the pure frequency characteristics of the DUT. Measurement results can be stored and printed both as a graphical display and in tabular form and then be further processed by a program such as Excel™. FIG 1 shows a schematic of the test setup.

Measurement is performed as follows. The carrier frequency with the given level is set by the generator. The signal is fed into the DUT and the output signal is applied to the receiver, set to the same center frequency. This means that the receiver is always in the optimum

measurement range, allowing precise collection of measured data throughout the frequency range. In this way, for instance, the microwave capability of RF cables can be tested. FIG 2 illustrates as an example the frequency response of different cable types of different length.

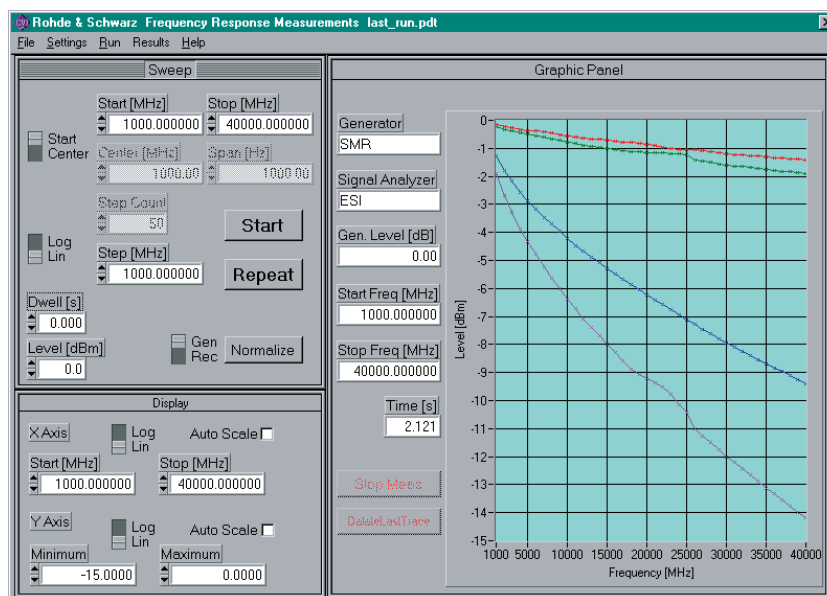


FIG 2

FreRes software automates measurement: here frequency response of different cable types of different length

REFERENCES

- [1] Kraemer, Wilhelm: Microwave Signal Generator SMR: Microwave in handy size. News from Rohde & Schwarz (1999) No. 162, pp 4–6
- [2] Keller, Matthias; Wöhrle, Michael: EMI Test Receivers ESI – EMI professionals through to 40 GHz. News from Rohde & Schwarz (1999) No. 162, pp 7–9

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