MONOFREQUENCY GENERATOR 25 GHZ

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ABSTRACT

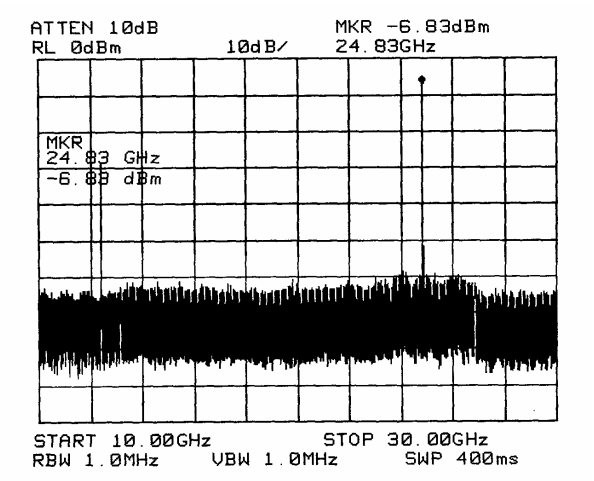
A 25 GHz generator was developed and made. Cascade structure method was used. The generator has two operational modes: CW and 1 kHz modulation. Available output power is higher than 2 dBm.

1 DESCRIPTION OF GENERATOR

A cascade network creates this frequency source. There are following circuits: an oscillator 12.5 GHz, two buffer amplifiers and a doubler. Photo and the scheme of the cascade network are in Fig. 2.

2 DEVELOPMENT AND REALIZATION

The development and realization of particular stages are described in a few following lines: all circuits were designed using small-signal scatter parameter method. Even though is quicker than classical nonlinear design but the result obtained by this method is only an approach. Detailed description of the design is not a part of this paper. An unexpected phenomenon occurred during its development. It was related to the cascade network. The modulation depth varied between –4 and –50 dB in dependence on DC working points of each stage. Measured data are shown in Fig. 1.



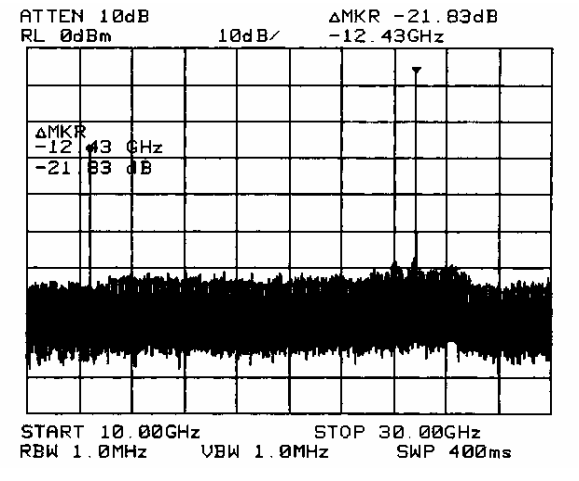
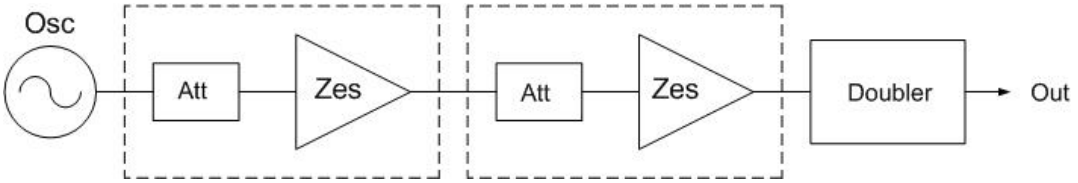


Fig. 1: *Measured data (through external 10 dB attenuator)*



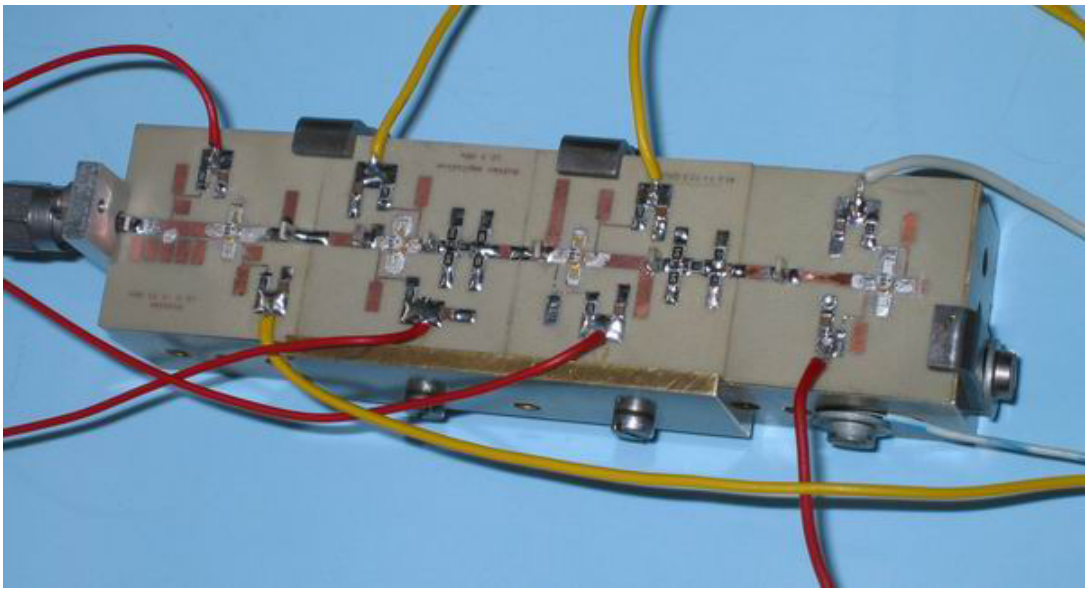


Fig. 2: *25 GHz oscillator*

3 CONCLUSION

In this paper was described the 25 GHz generator. It was developed and made by using the cascade network structure. The generator has two operational modes: CW and 1 kHz modulation. Available output power is higher than 2 dBm. Between the simulated and measured data was good agreement.

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