



Application Note

Testing IP3 With The SF1000/800

Applicable Products

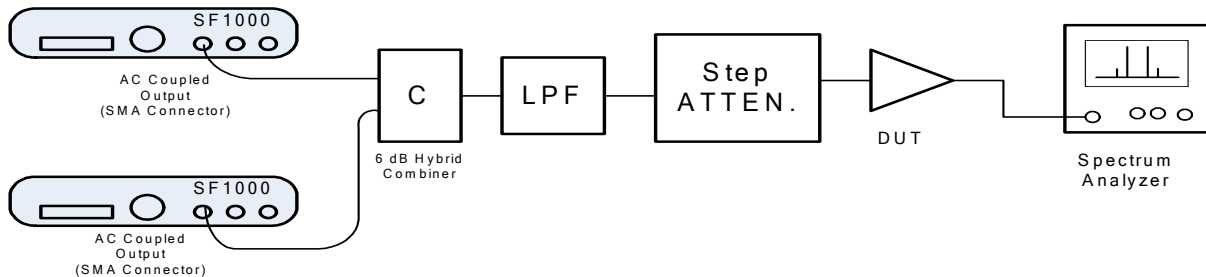
Models
SF1000
SF1000E
SF800
SF800E

Description

The Signal Forge Digitally Synthesized Signal Generators are high performance, low cost signal generators that have many uses in the testing of digital and analog designs. This application note describes a low cost way to test amplifiers for IP3 (this is quite possibly the cheapest way to implement this test). Two SF1000/800 devices are needed, plus interconnect equipment and a spectrum analyzer.

Operation

IP3 is tested by driving two very close frequencies (both in the range of Device Under Test's amplification) that are first combined and then fed into the DUT amplifier. The block diagram below shows how to implement this measurement. The frequency difference between the two sources is usually 10 KHz - 30 KHz. The creation of these close-in-range frequencies is easily accomplished with the SF1000/800 since it provides 1Hz frequency resolution over the its entire frequency range.



Implementation Notes

- ❑ The input intercept of the analyzer should be much greater than the output intercept of the amplifier under test (or an attenuator could be placed at the output)
- ❑ The LPF must have a cutoff higher than the highest frequency used for this test.
- ❑ The formula for IP3 is: $IP3_{out} = P_{out} + IMDR/2$