



Application Note

Increasing or Decreasing the Output Power of a Signal Generator

Applicable Products

SF1000
SF100E
SF800
SF800E

Description

The Signal Forge Digitally Synthesized Signal Generators provide an AC coupled output with a power range of -11 dBm to $+7$ dBm. This amplitude range may be extended by adding an external amplifier or attenuator module to increase or decrease power respectively.

Operation

Increasing Output Power

To increase the maximum power output beyond $+7$ dBm, add an external amplifier at the AC coupled output. SignalForge will provide a High Output Module, the SF-25, to increase the power to 25dBm max. (Contact Signal Forge sales at sales@signalforge.com for availability and pricing.)

Note that the gain uncertainty, due to the amplifier, affects the output signal. If you need a clean, harmonic free output, add a low pass filter at the output to reduce the added harmonic distortion.

Decreasing Output Power

Some applications, such as receiver input signal strength testing, require very low power levels, an external attenuator, or low-pass filter, may be added to decrease the output power.

As in the case of the amplifier, there are uncertainties to consider when using an attenuator, such as attenuator flatness and accuracy. To achieve accurate measurements, characterize the attenuator using a network analyzer and if needed, correct the level using the dBm Offset selection on the *Edit Parameters* menu of the Wave Manager Menu.

Attenuator Implementation Notes

Interfering signals are an important source of measurement error especially at very low amplitude levels (signal of -50 dBm or less). These signals may be from external radiation or even leakage from the frequency generator itself. Any leakage from the frequency generator affects the level input to the device under test (DUT). External noise will also affect the measurement data. To reduce these possible errors, place the DUT in a shielded environment such as a metal box. This will reduce the effect of the external radiation and any signal leakage from your attenuator or frequency generator, provided they are outside of the shielded box.