

White Paper

High Speed Coherent DDS Microwave Source

Summary

We invented a new technology for coherent frequency hopping low phase noise and low spurs signal generation. The technology, patent pending, includes both unique FPGA based IP, supporting analog hardware and design algorithms. It offers superior capabilities over current state of the art modules of this type. This technology is particularly useful for Local Oscillator signal generation among other applications. The key advantages of the technology over the state of the art include:

- Coherent signal generation by design – no computation required.
- Fast frequency hopping (2ns is achievable)
- Direct digital microwave signal generation (i.e. 500MHz – 28GHz and up)
- Lower power consumption.
- Low (and selectable) spurious levels.
- Low phase noise.
- Large number of selectable signal frequencies e.g. 50, 100, 1000.
- Small module footprint.
- Multiple and concurrent coherent signals capability.
- Priming or signal pre-selection is not required.

Some features of the technology:

- The DDS can be implemented in standard FPGA's
- Frequency hopping speed and maximum signal frequency scales with FPGA technology
- Phase noise determined by FPGA technology and reference quality.
- A DAC is not required in this technology

We seek to license the technology and/or develop and produce custom signal source modules based on this technology.

Further details can be disclosed under an NDA.

Technology demonstrator is available.

Custom module designs and development programs are in-process.