Development of an Arbitrary Waveform Testbed

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Why?

- To test meters against measured real world waveforms.

Specifications

- Repeatable (unlike a metering point)
- Frequency range of up to 150 kHz
- Target uncertainty of 0.1%
Phantom Power Setup

- Using separate stable voltage and current sources that are phase locked so when applied to a power or energy meter it measures power.
- As electricity meters derive their power from the L-N voltage the voltage source also has to drive a small current.
Equipment Settings

- Oscilloscope sampling at 1 MS/s (22 bit)
- Current source rated at 100 kHz
- AWG generating at 1 MS/s
Conclusion

- An Arbitrary Waveform Testbed for testing electricity meters has been developed
- Enabling real world measured appliances to be tested repeatably
- Subtle difference from VSL design on isolation