

1st International Symposium of Gunma University Medical Innovation and 6th International Conference on Advanced Micro-Device Engineering (GUMI&AMDE 2014)

Phase Noise Measurement Technique Using Delta-Sigma TDC Without Reference Clock



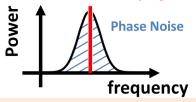
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Oscillator Phase Noise

Necessary signal



Bad influence in electronic system

- Interference in RF system
- ADC performance degradation

Important

Phase Noise Test

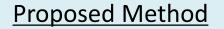
Conventional Method



- Expensive spectrum analyzers
- Long measurement time (~10seconds)

Significant test cost





Using simple circuit



Delta-Sigma
Time-to-Digital Converter (TDC)

Low Cost , High Quality
Phase Noise Test

