Anritsu Advancing beyond

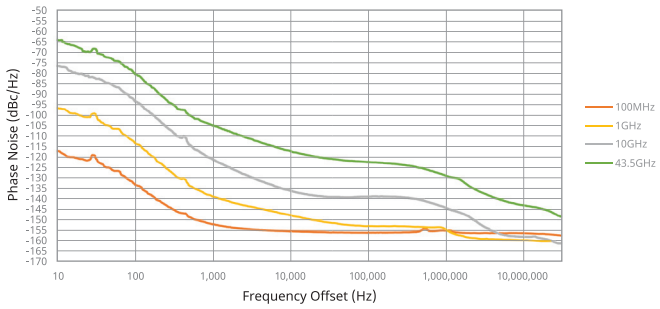
Rubidium™ MG362x1A
Testing Giga Sample ADCs and DACs

Introduction

Today's high-speed ADCs and DACs are moving ever closer to antennae in transceivers, thus enabling digital conversion and DSP processing very early in Tx/Rx signal processing chains. The Rubidium signal generator features exceptional spectral purity and very low jitter that makes it ideal to test-high speed ADC and DAC performance, both as signal source and as clock source.

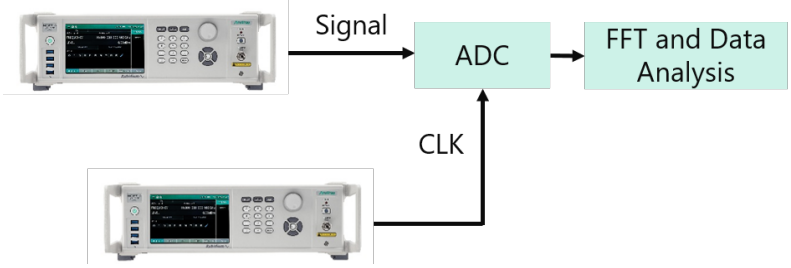
Testing high-speed ADC requires a pure analog source with low phase noise, harmonics, non-harmonics, and wideband noise so that the ADCs effective number of bits (ENOB), spurious free dynamic range (SFDR), and other parameters can be measured as accurately as possible. The Rubidium signal generator offers exceptionally pure signals that have the least possible impact on true ENOB and SFDR of the ADC, thus leading to the most accurate measurements.

Measured Phase Noise – Option 13



Non-Harmonic		Harmonic and Harmonic Related	
Frequency Range	**Standard**	**Frequency Range**	**Standard**
9 kHz to ≤ 31.25 MHz	< -65 dBc	9 kHz to ≤ 31.25 MHz	-35 dBc
> 31.25 MHz to ≤ 20 Ghz	< -70 dBc	> 31.25 MHz to ≤ 1.3 Ghz	-58 dBc
> 20 GHz to 43.5 GHz	< -63 dBc	> 1.3 GHz to ≤ 43.5 GHz	-60 dBc

The Rubidium signal generator's very low RMS jitter and wideband phase noise makes it the best choice as a clock source for testing high-speed ADCs and DACs. RMS jitter of a clock source reduces true SNR of the ADC and hence should be as small as possible. ADC is a sampled system and its analog input signal is convolved with a clock signal in the frequency domain. If the clock signal's bandwidth is greater than the Nyquist bandwidth at the input of the ADC, which is not uncommon, wideband phase noise of the clock is aliased into ADC output and accumulated many times, thus worsening SNR. The Rubidium signal generator keeps both jitter and wideband phase noise very low to enable a better measurement.



11410-02877, Rev. A Printed in United States 2021-11
©2021 Anritsu Company. All Rights Reserved.