

Agilent 81100 Family of Pulse/Pattern Generators

Simulation of Jittering Synchronization Signals for Video Interfaces

Product Note 4

Introduction

This product note describes how R&D engineers in the communication industry use Agilent Technologies pulse generators for the development of video interfaces for projection units.

Several data communication companies develop interfaces between Local Clock Oscillators (LCOs) and video, TV, or computers for overhead projection units. It is very important for them to stay up-to-date with the rapidly changing video interfaces in computers, and to have test equipment that can simulate these different interfaces (such as HDTV interfaces). These interfaces vary from 33 MHz to 80 MHz.

A critical indicator of the quality of their design is its sensitivity to a jittering distributed clock signal, both in frequency and amplitude.

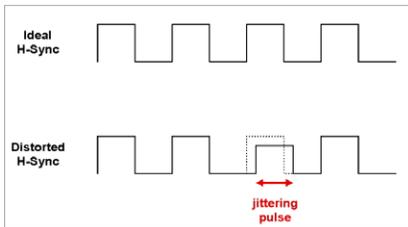


Figure 1. Jittering distributed clock signal

Required equipment for Lab 4

- 1x Pulse/Pattern Generator (81110A + 2x 81111A, 81104A + 2x 81105A or 8110A + 2x 81103A)
- 1x Infiniium Oscilloscope
- 2x BNC cables

How to hook up the instruments

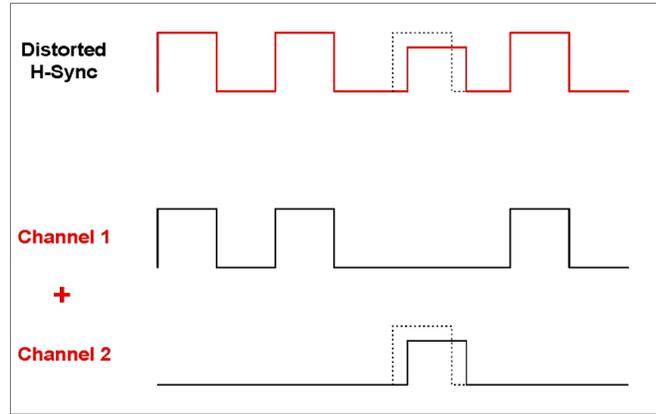
1. Connect STROBE OUT (pulse/pattern generator) to “Trig In” (scope).
2. Connect OUTPUT 1 (pulse/pattern generator) to Channel 1 (scope)



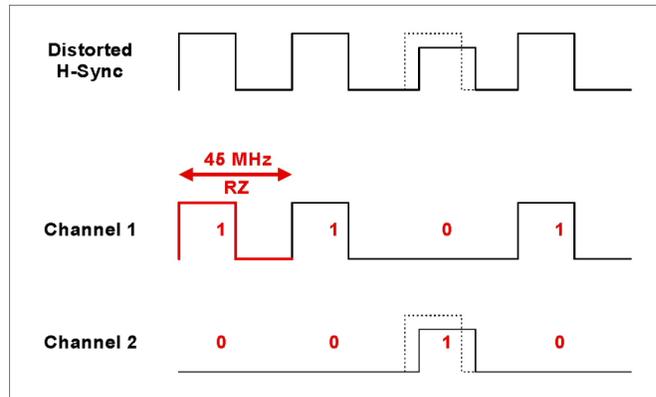
Figure 2. The setup of an Agilent pulse generator and Infiniium oscilloscope.

To simulate jittering synchronization signals with a pulse generator we need:

- two output channels with channel addition

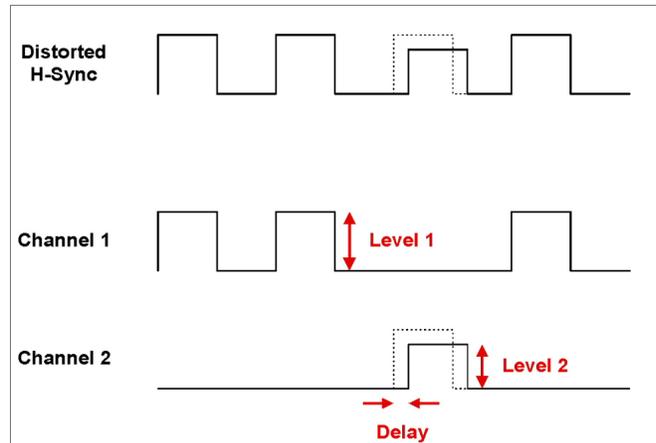


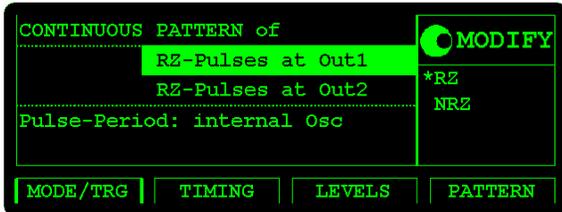
- programmable bit patterns up to 45 MHz frequency



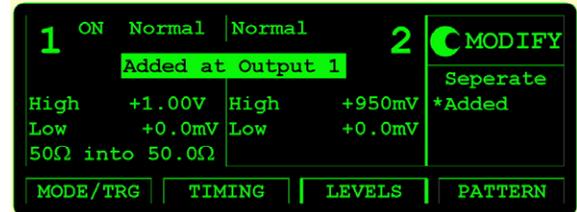
- variable delay and variable level

Follow the following steps to set up the right parameter values on the front panel, but also have a look at the pulses on the oscilloscope.





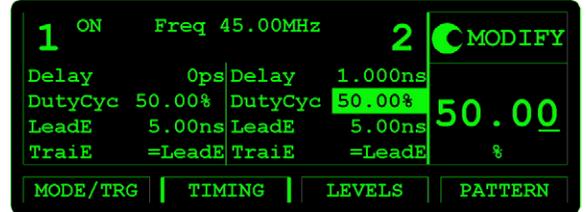
STEP 1: First, reset the instrument by selecting RECALL + 0 (SHIFT, STORE + 0). Select CONTINUOUS PATTERN of RZ-Pulses in the MODE/TRG menu.



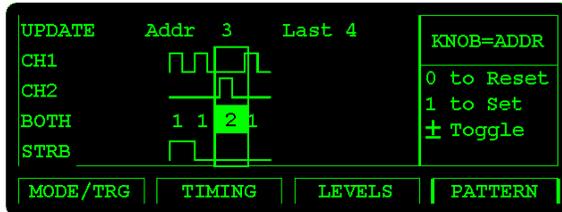
STEP 4: Go to the LEVELS menu, add the channels together with the appropriate levels, and switch on output 1.



STEP 2: Set up the bit pattern as shown above in the PATTERN menu. Start with setting the LAST bit to 4.



STEP 5: Set the frequency to 45 MHz and vary the channel 2 delay to jitter the pulse.



STEP 3: Press the PATTERN key again to view the waveforms.



STEP 6: View the jittered pulse on an Agilent 54845A Infiniium oscilloscope.

Related Literature Pub Number

Agilent Family of Pulse/
Pattern Generators
Brochure **5980-0489N**

Agilent 81110A/81104A
Pulse/Pattern Generator
Data-Sheet **5989-5500EN**

Agilent 81130A Pulse/
Pattern Generator
Data Sheet **5967-6237E**

Radar Distance Test to
Airborne Planes
Product Note 1 **5968-5843E**

The Dual Clock Gbit
Chip Test
Product Note 2 **5968-5844E**

Magneto Optical Disk
Drive Research
Product Note 3 **5968-5845E**

For more information, visit us:
www.agilent.com/find/pulse_generator

For the latest version of this document,
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insert the publication number
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Taiwan:
(tel) 0800 047 866
(fax) 0800 286 331

Other Asia Pacific Countries:
(tel) (65) 6375 8100
(fax) (65) 6755 0042

Email:
tm_ap@agilent.com

Contacts revised: 09/14/05

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