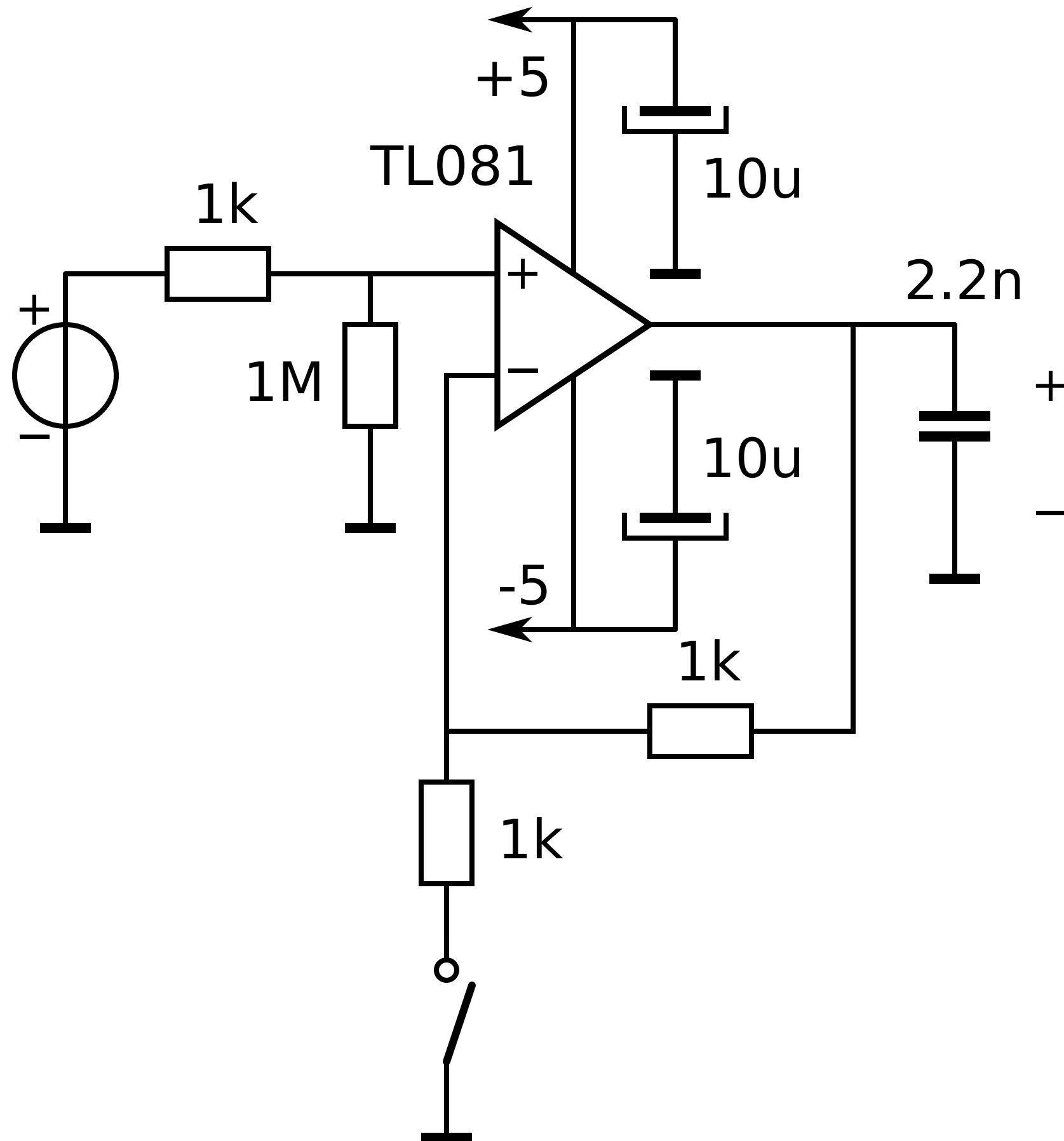


Structured Electronic Design

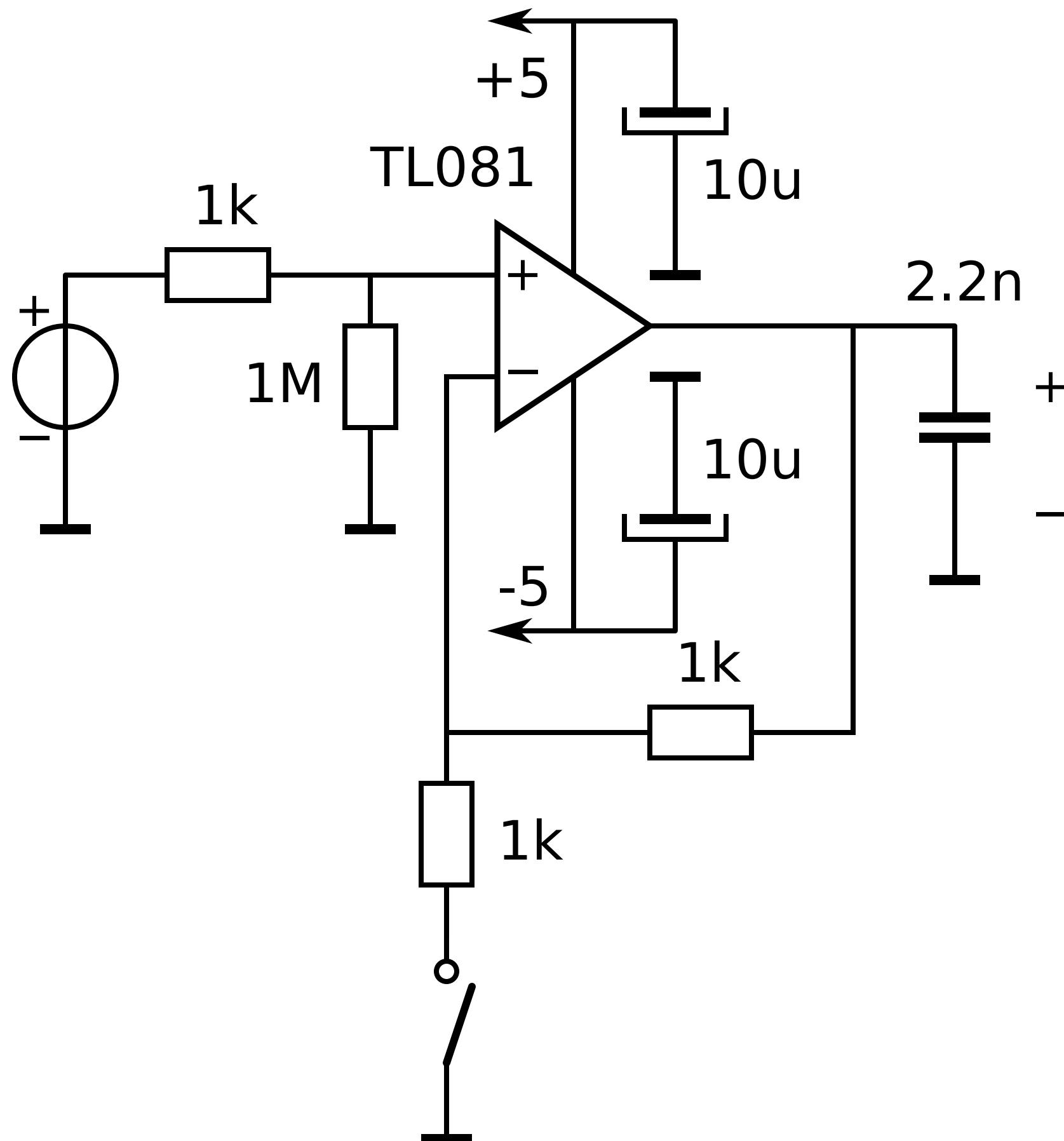
DIY TL081 cable driver demo

The Circuit



The Circuit

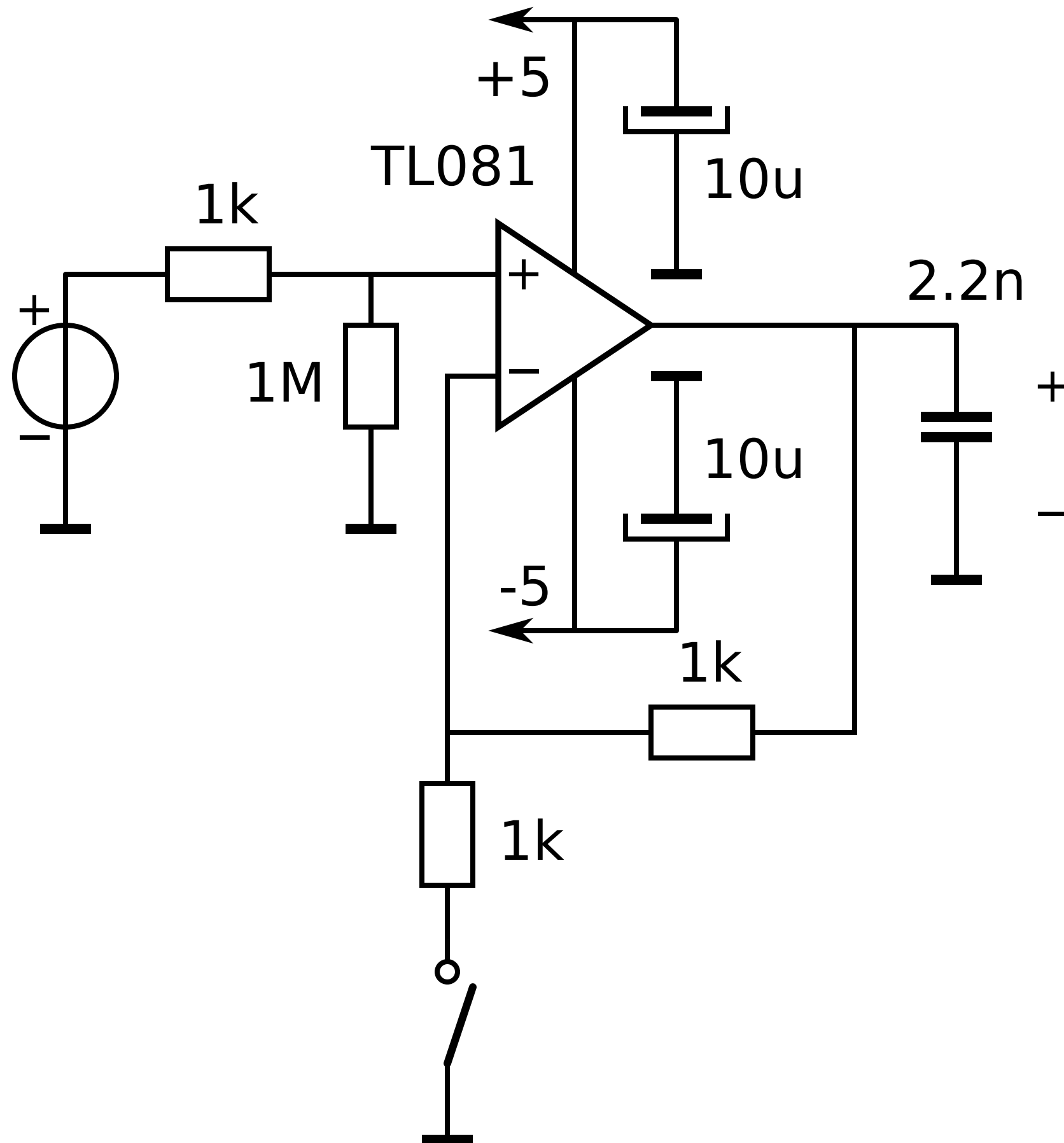
Demonstration of:



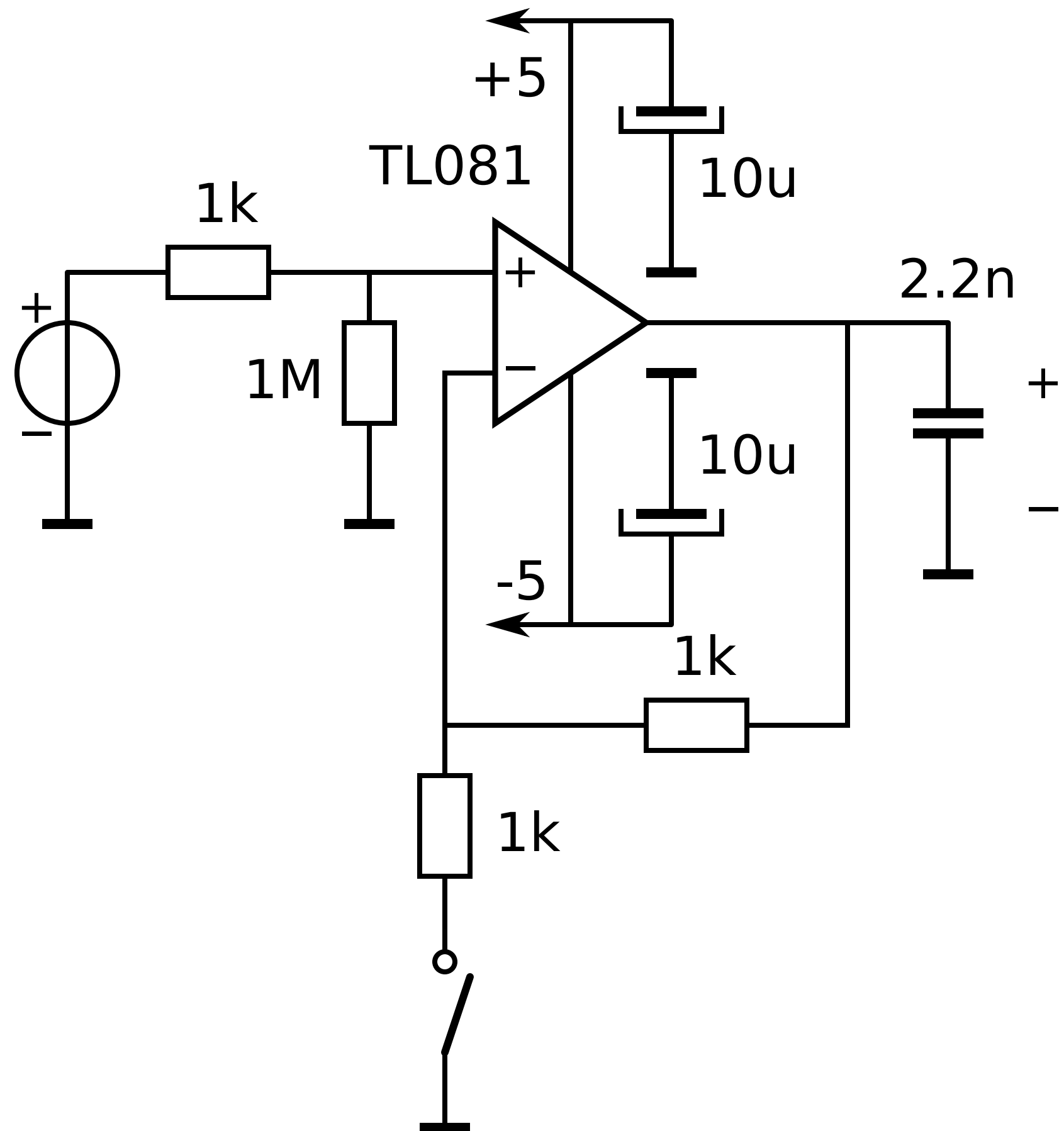
The Circuit

Demonstration of:

Frequency instability



The Circuit

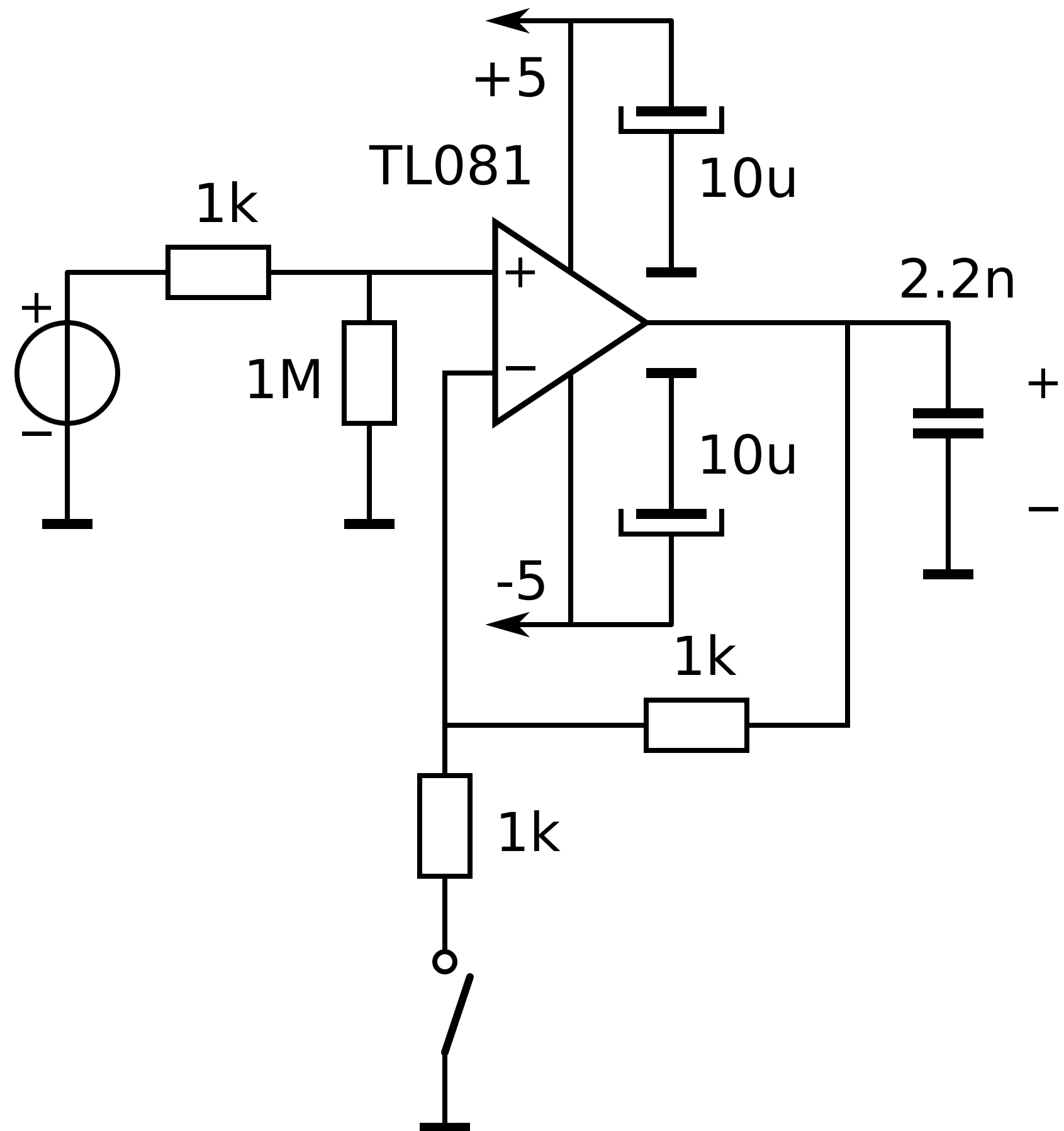


Demonstration of:

Frequency instability

Frequency compensation

The Circuit



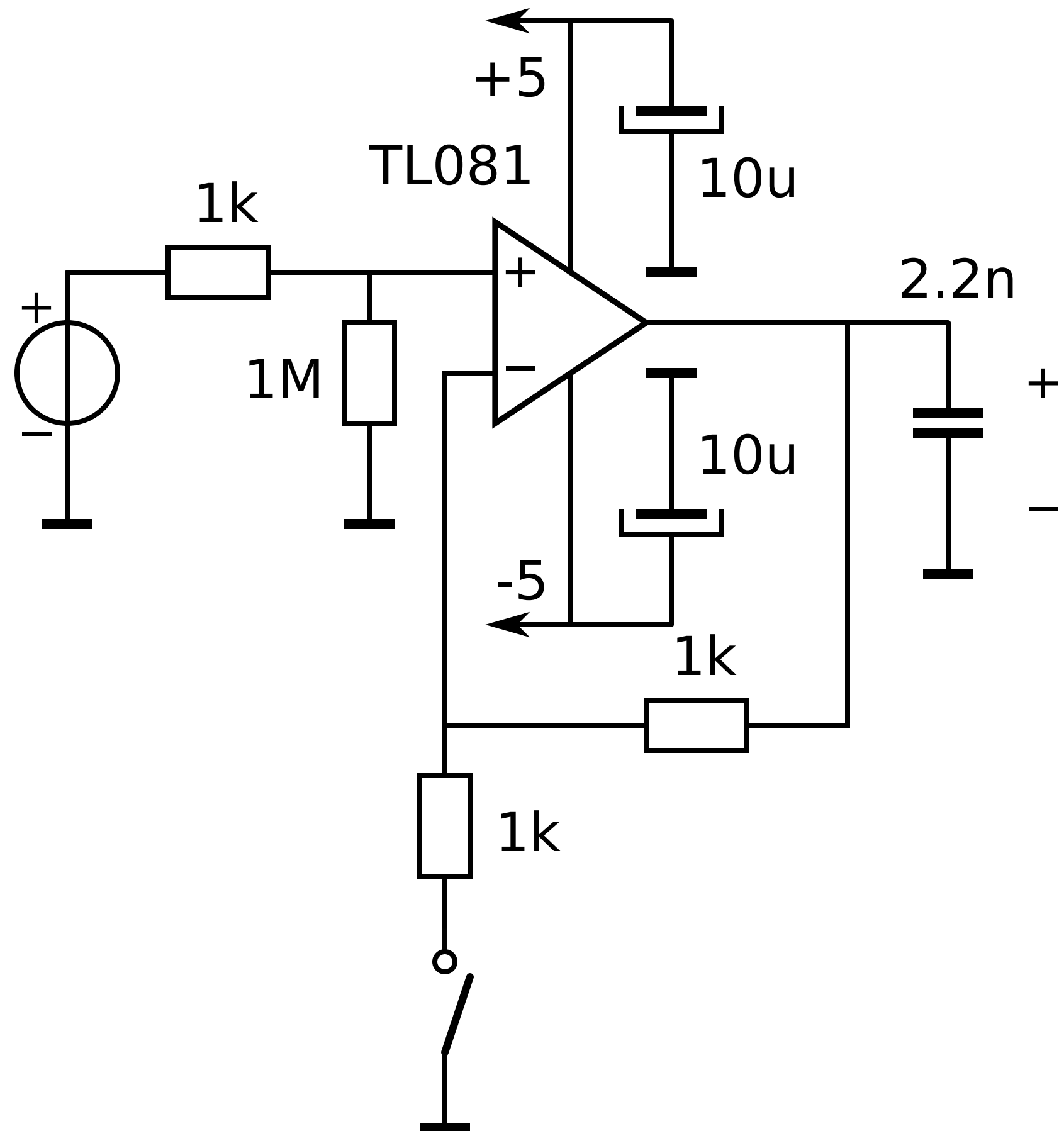
Demonstration of:

Frequency instability

Frequency compensation

Effects of input common-mode
voltage range limitation

The Circuit



Demonstration of:

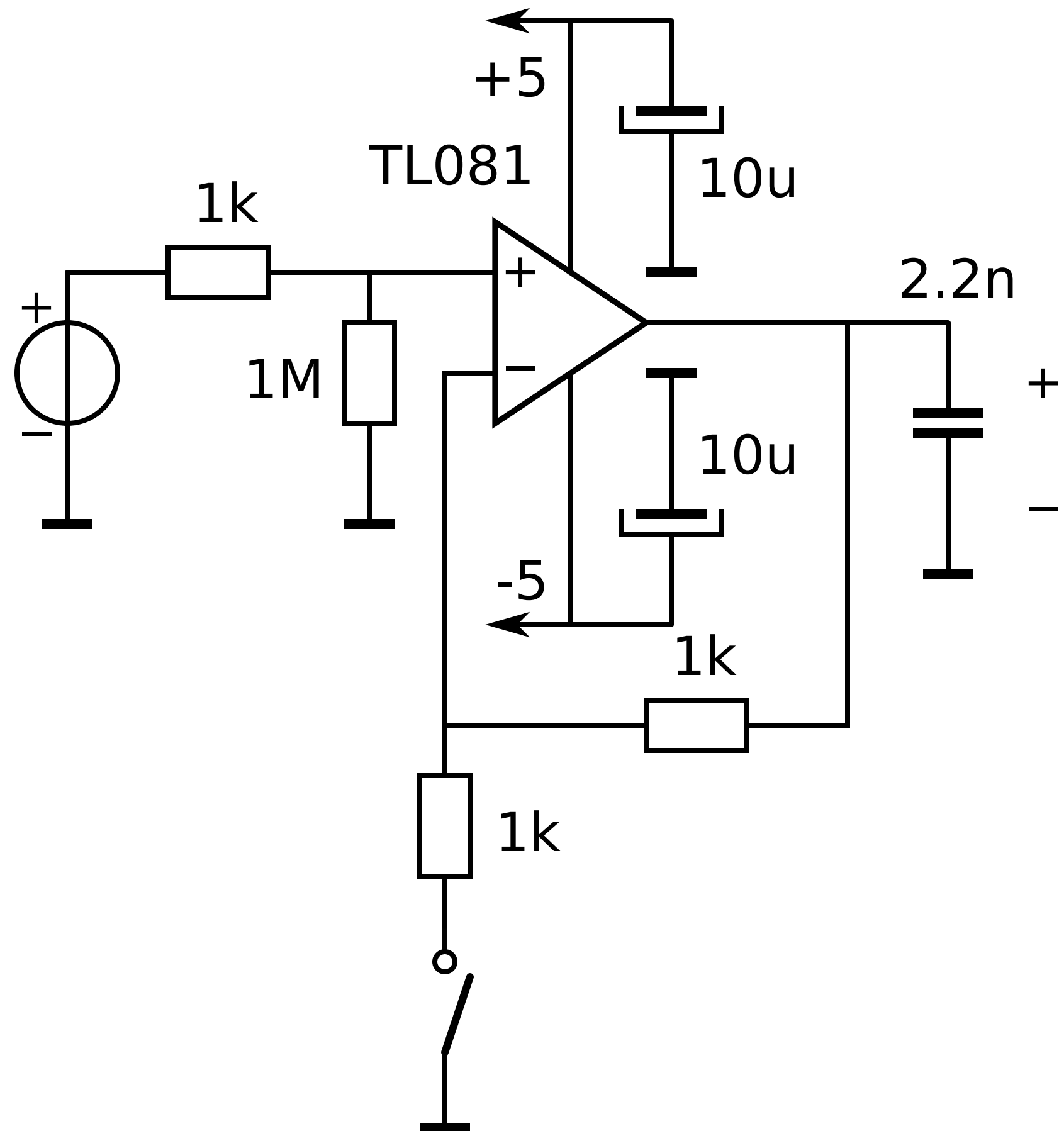
Frequency instability

Frequency compensation

Effects of input common-mode
voltage range limitation

Phase reversal

The Circuit



Demonstration of:

Frequency instability

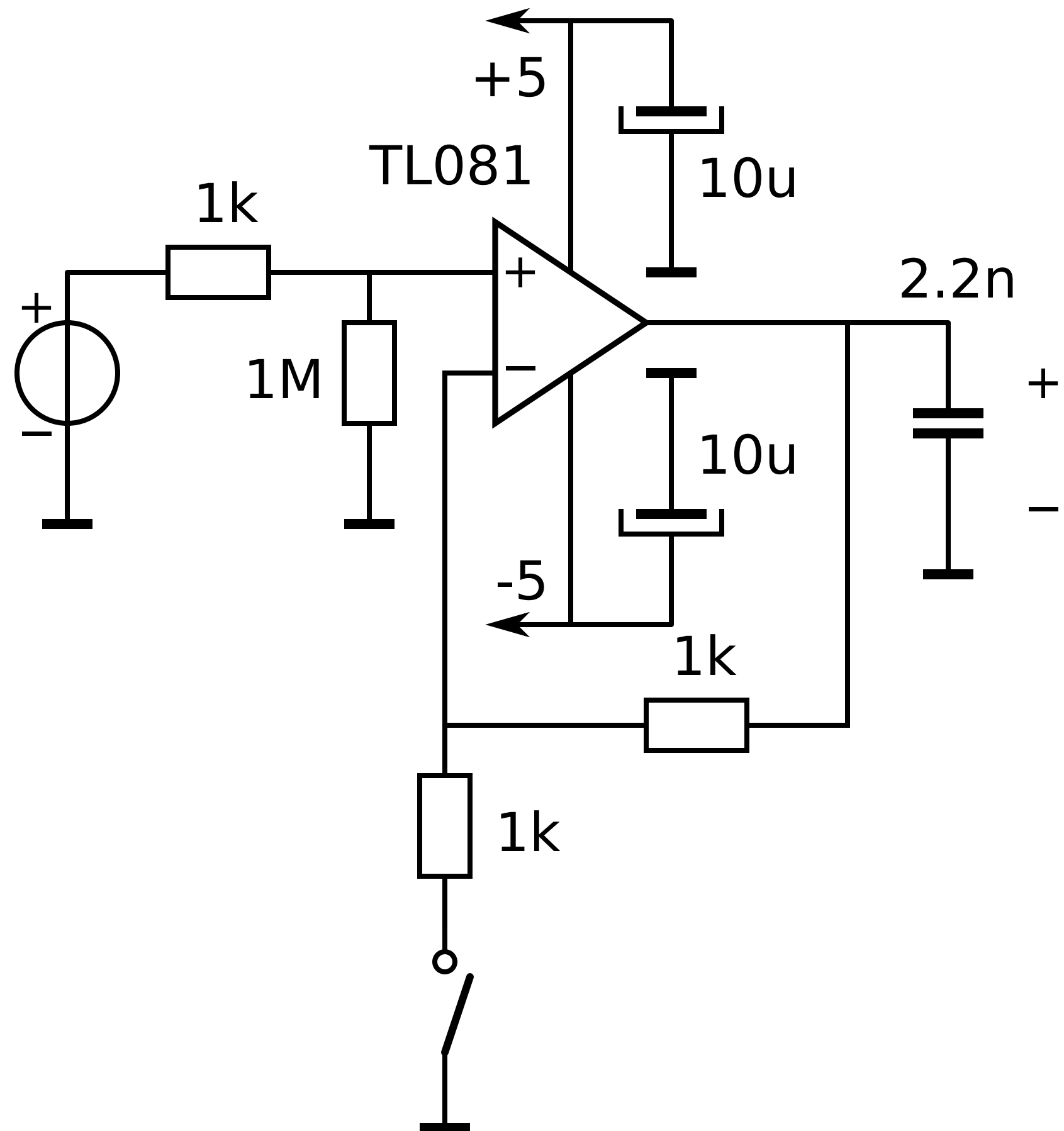
Frequency compensation

Effects of input common-mode
voltage range limitation

Phase reversal

Output voltage clipping

The Circuit



Demonstration of:

Frequency instability

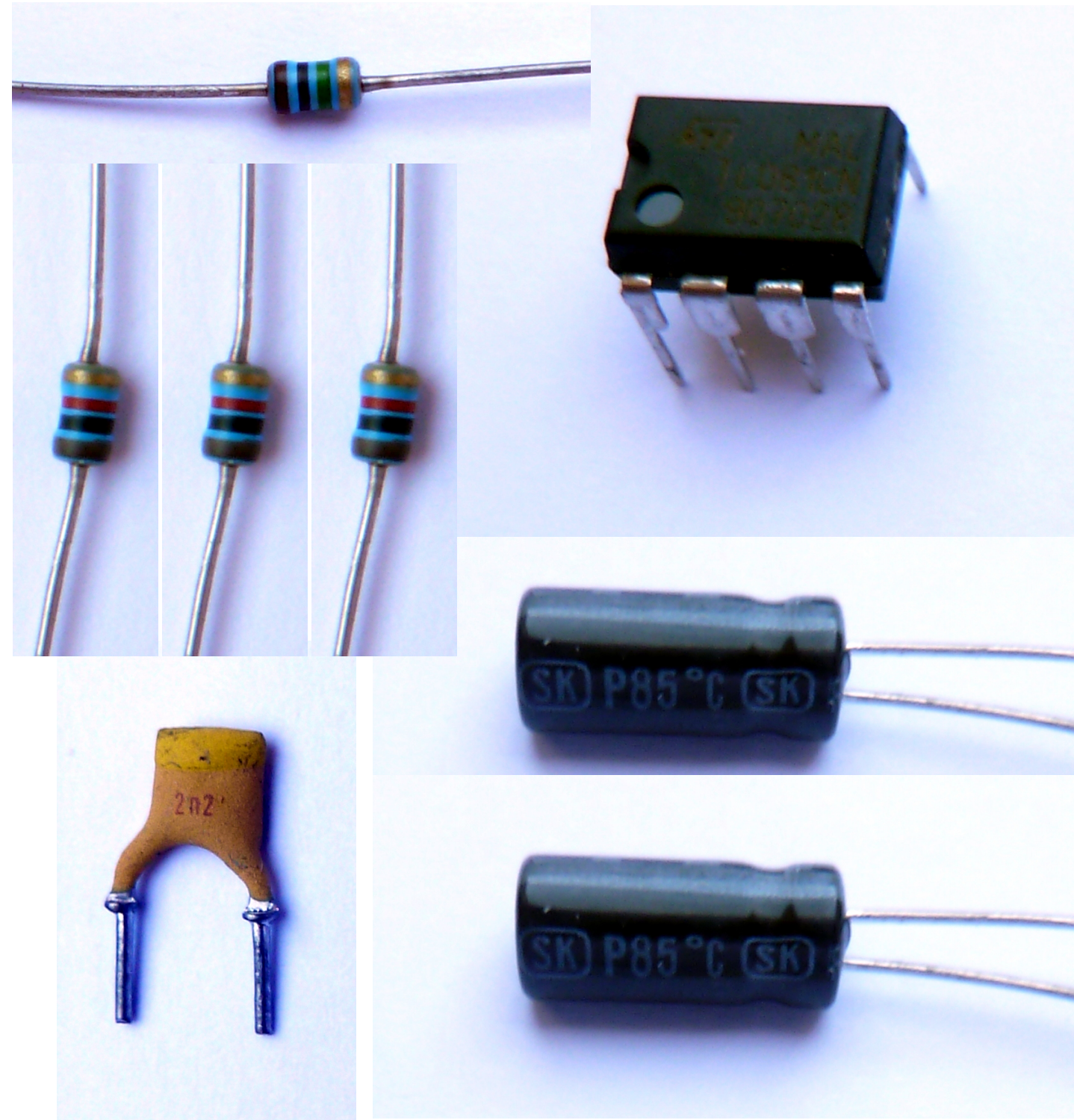
Frequency compensation

Effects of input common-mode
voltage range limitation

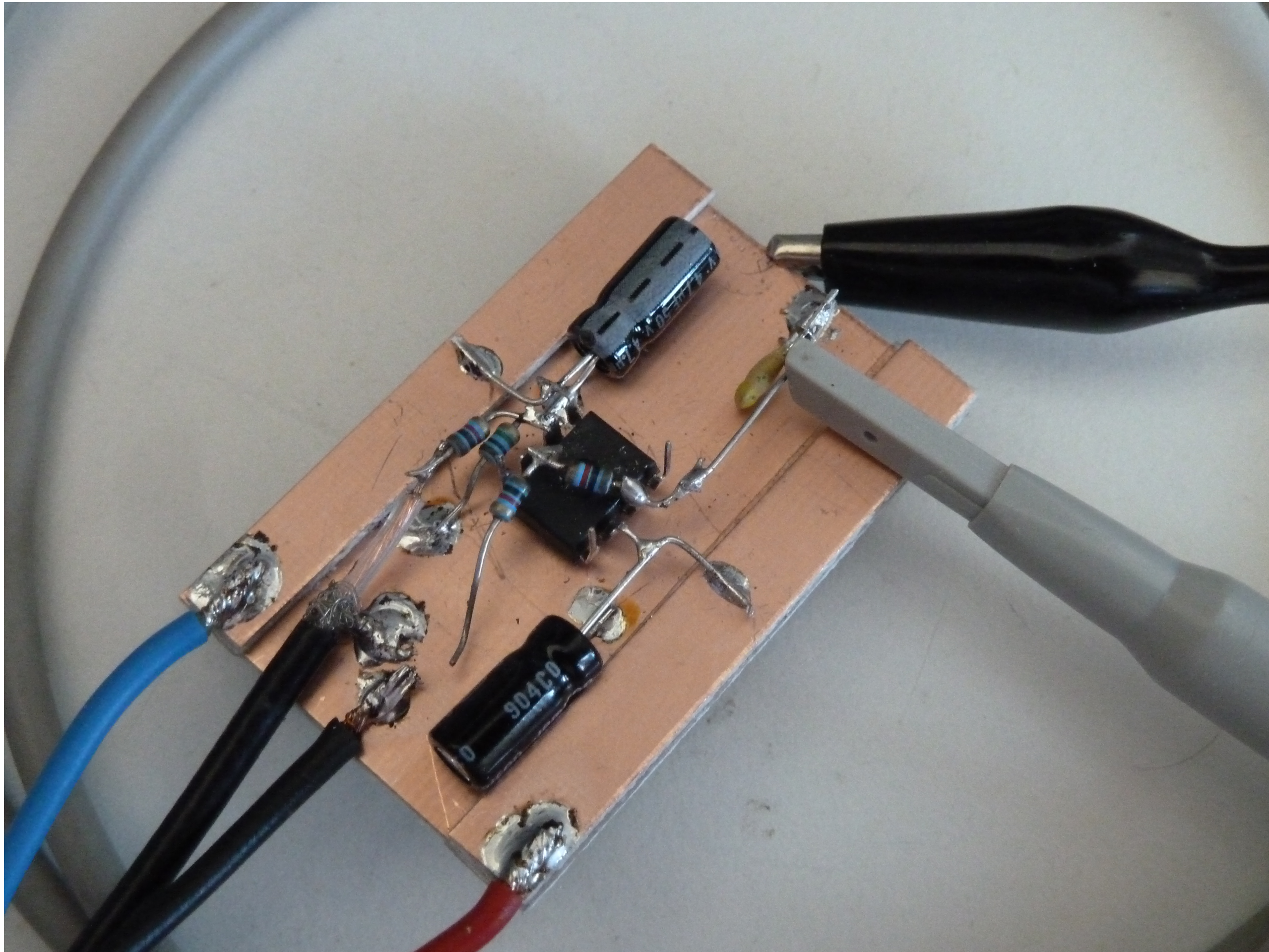
Phase reversal

Output voltage clipping

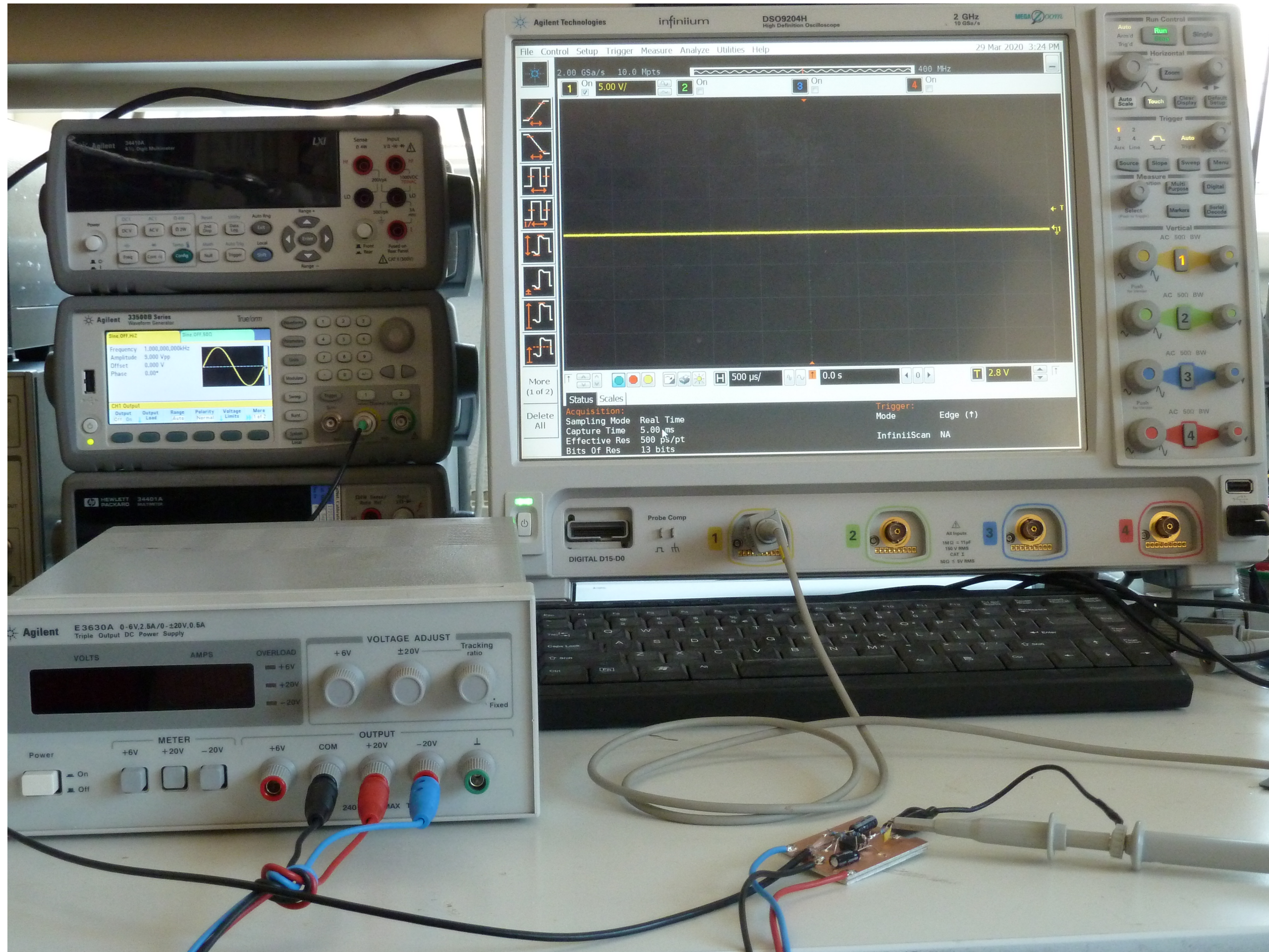
The Components



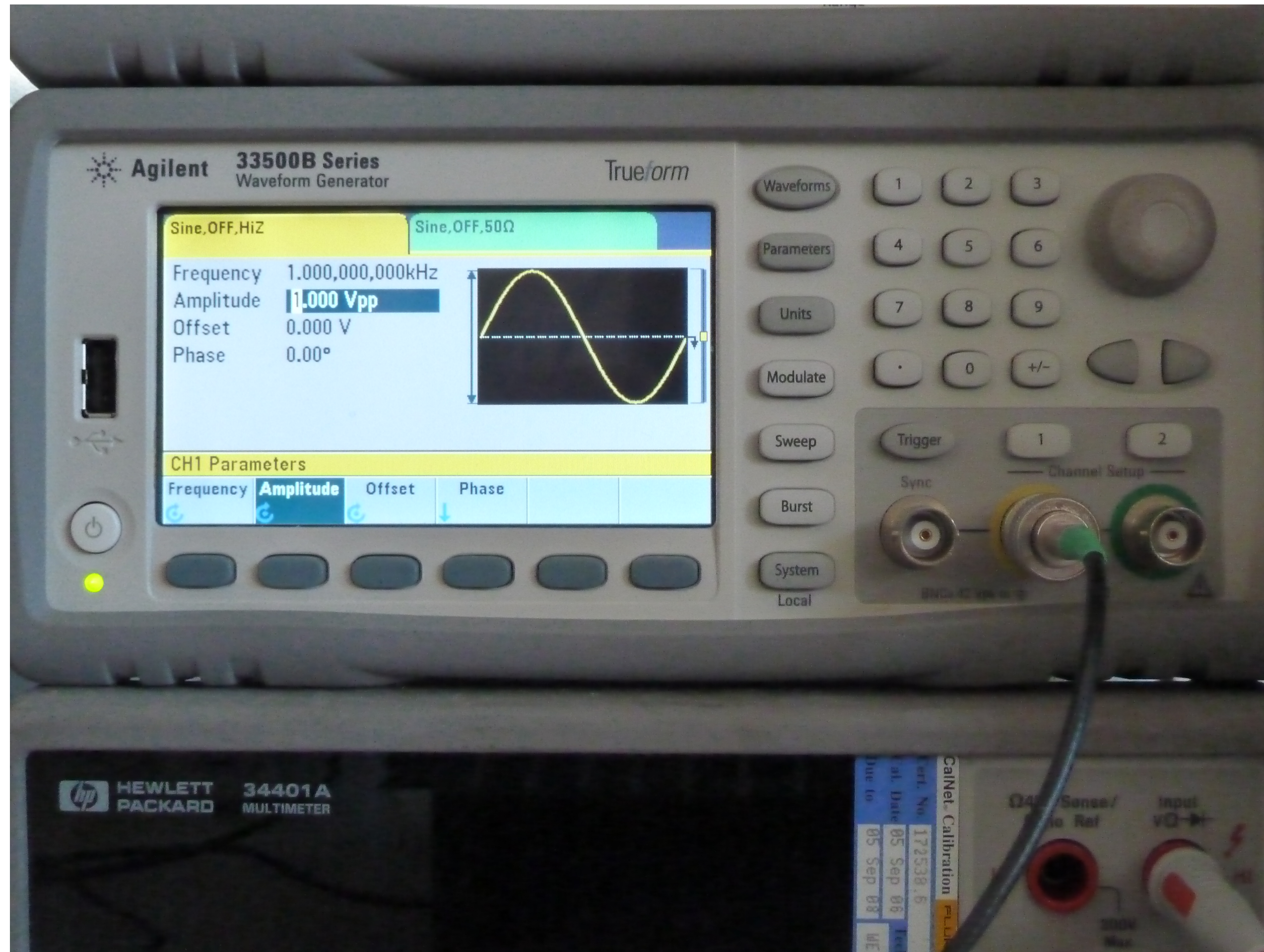
The Assembly



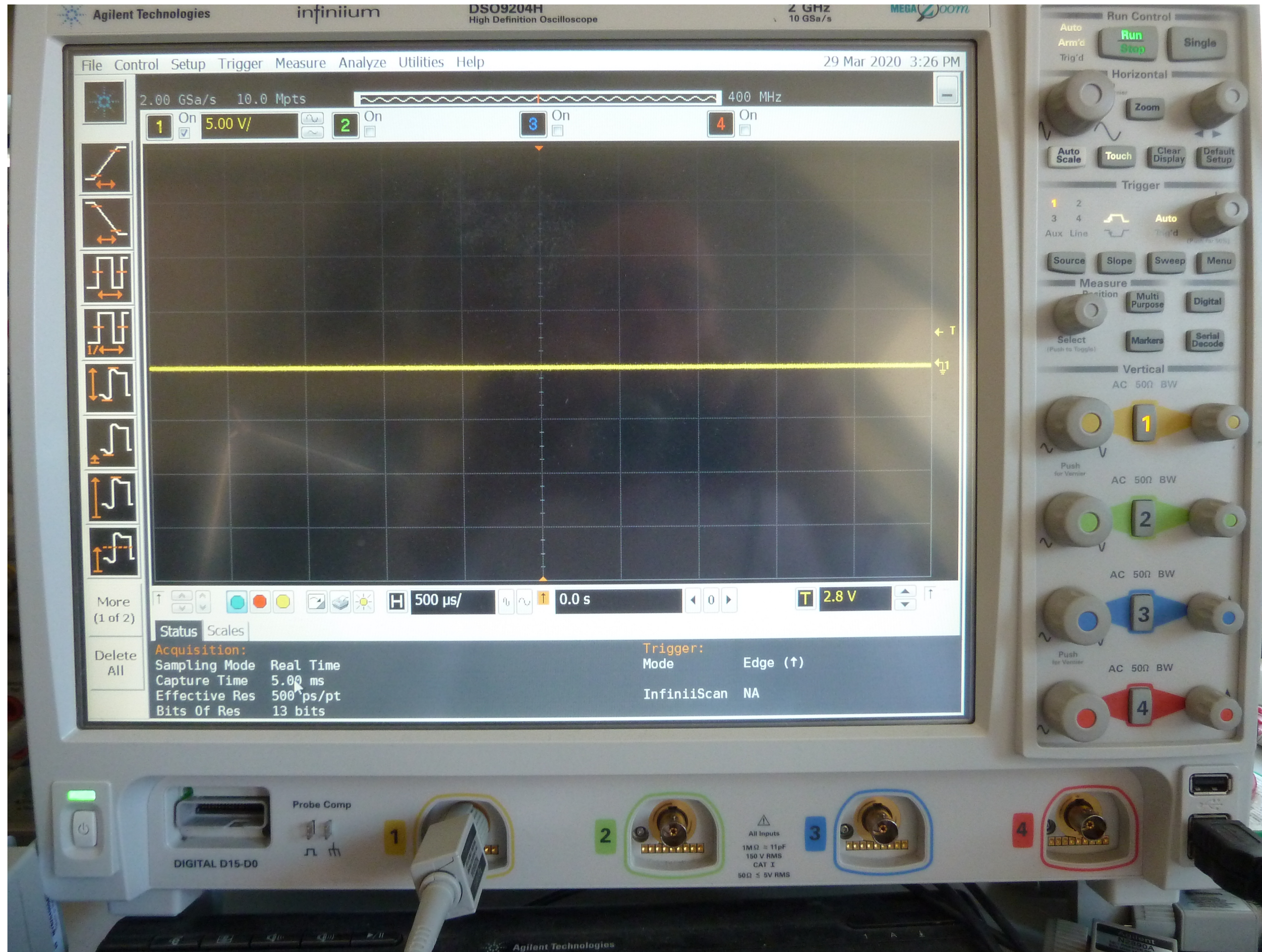
The Test Set Up



The Signal Generator



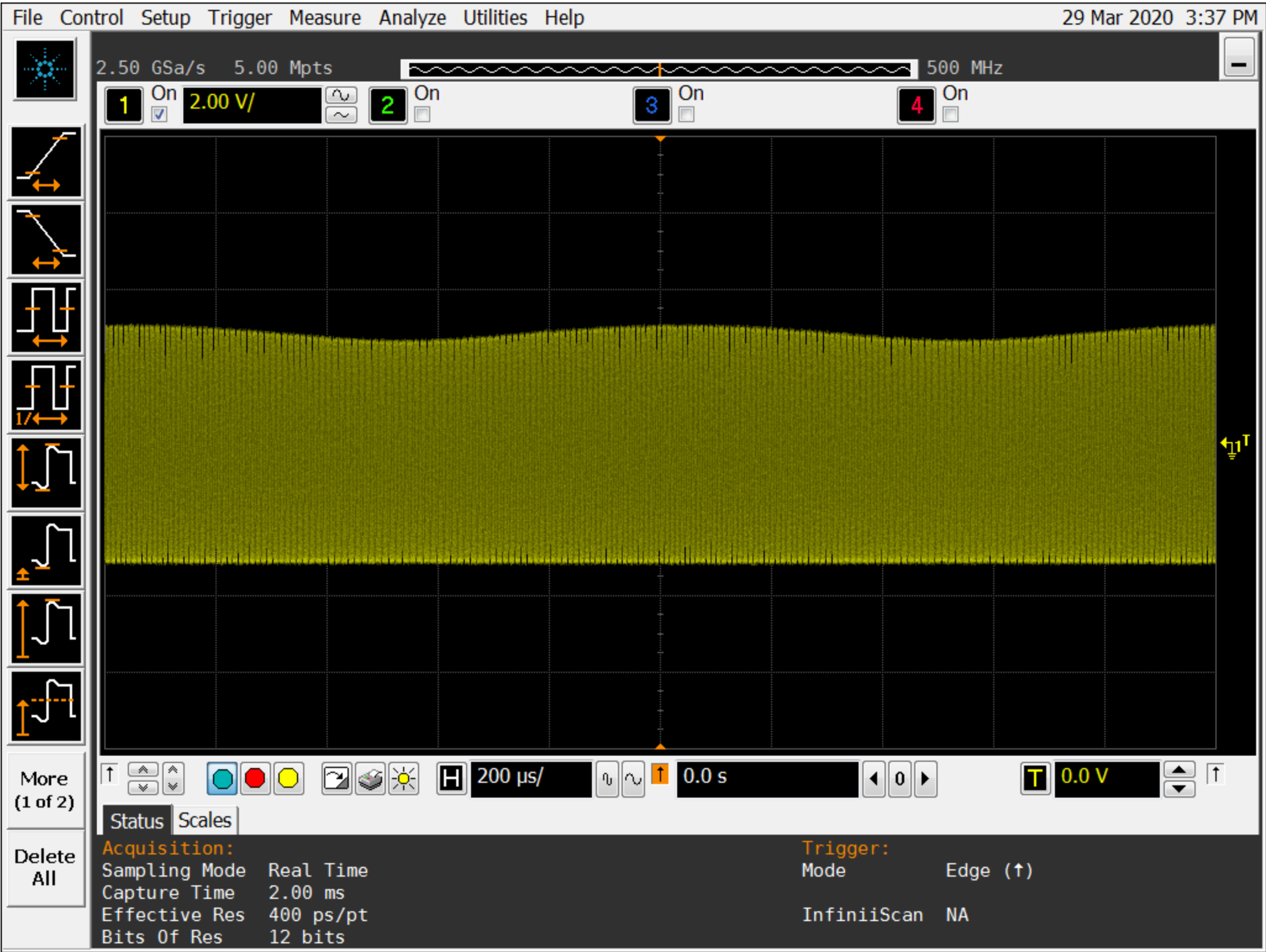
The Oscilloscope



The Power Supply

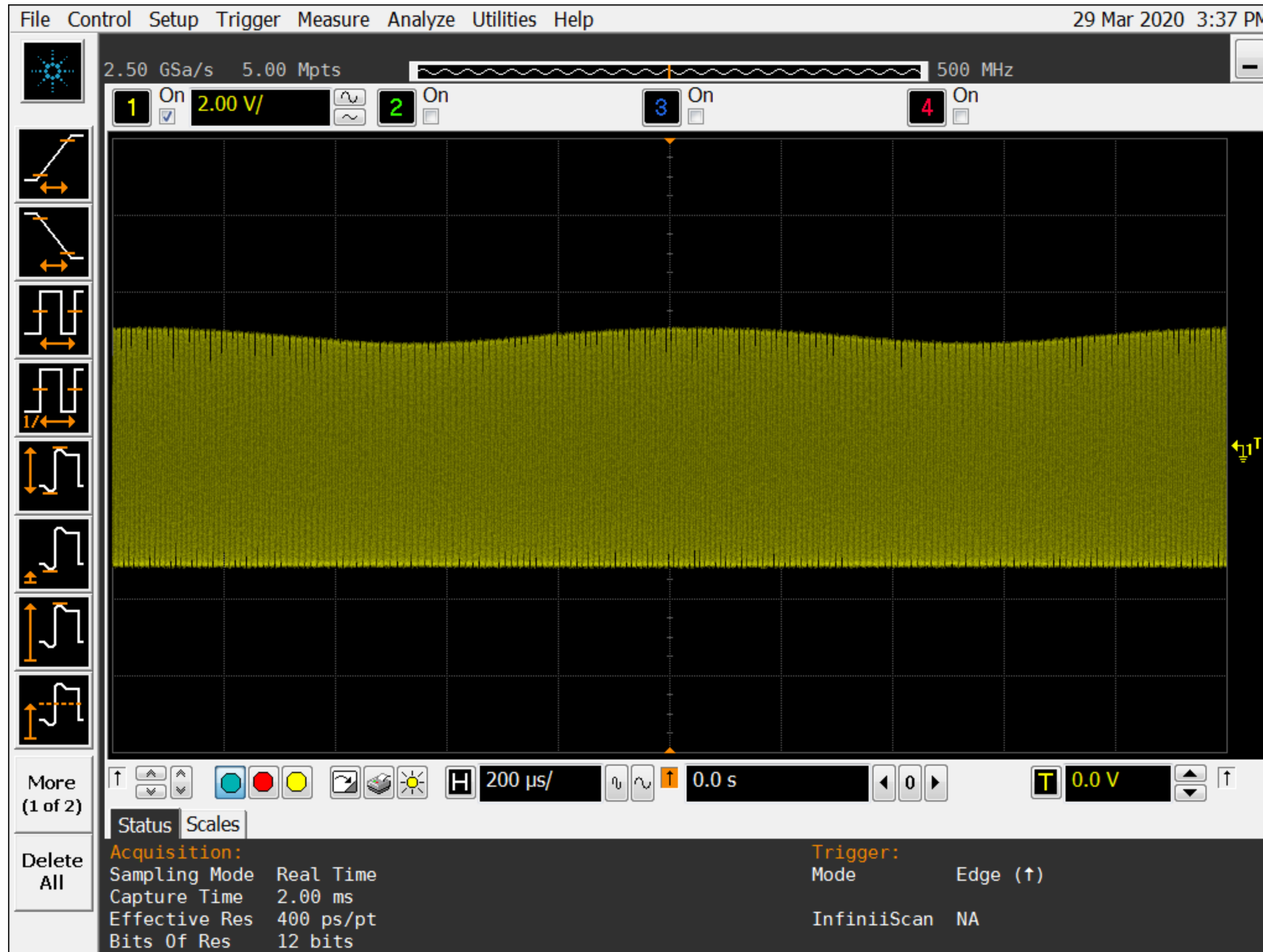


Measurement results follower



Response to 1kHz 1Vpp
sinusoidal signal

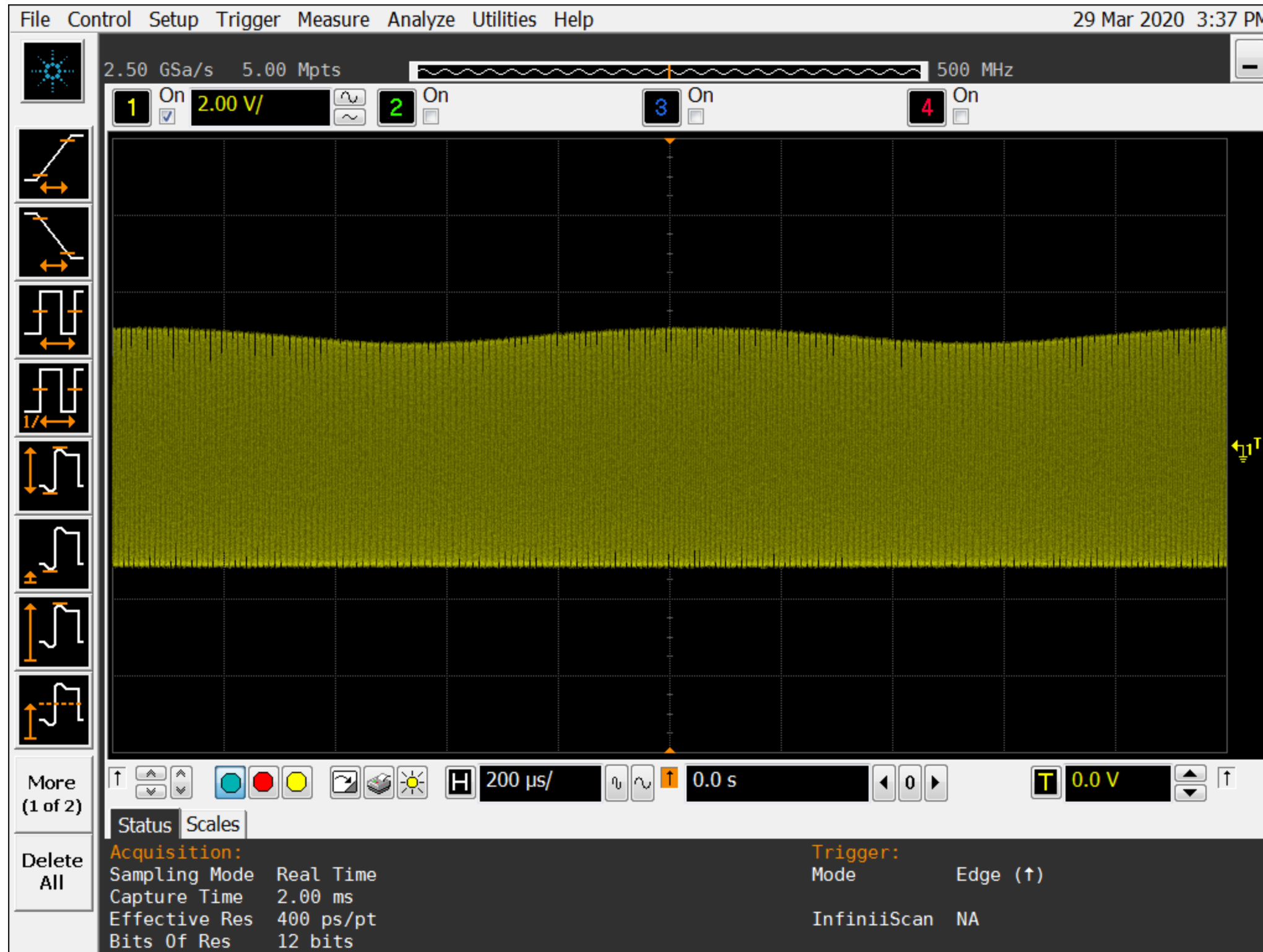
Measurement results follower



Response to 1kHz 1Vpp
sinusoidal signal

Is this as expected?

Measurement results follower

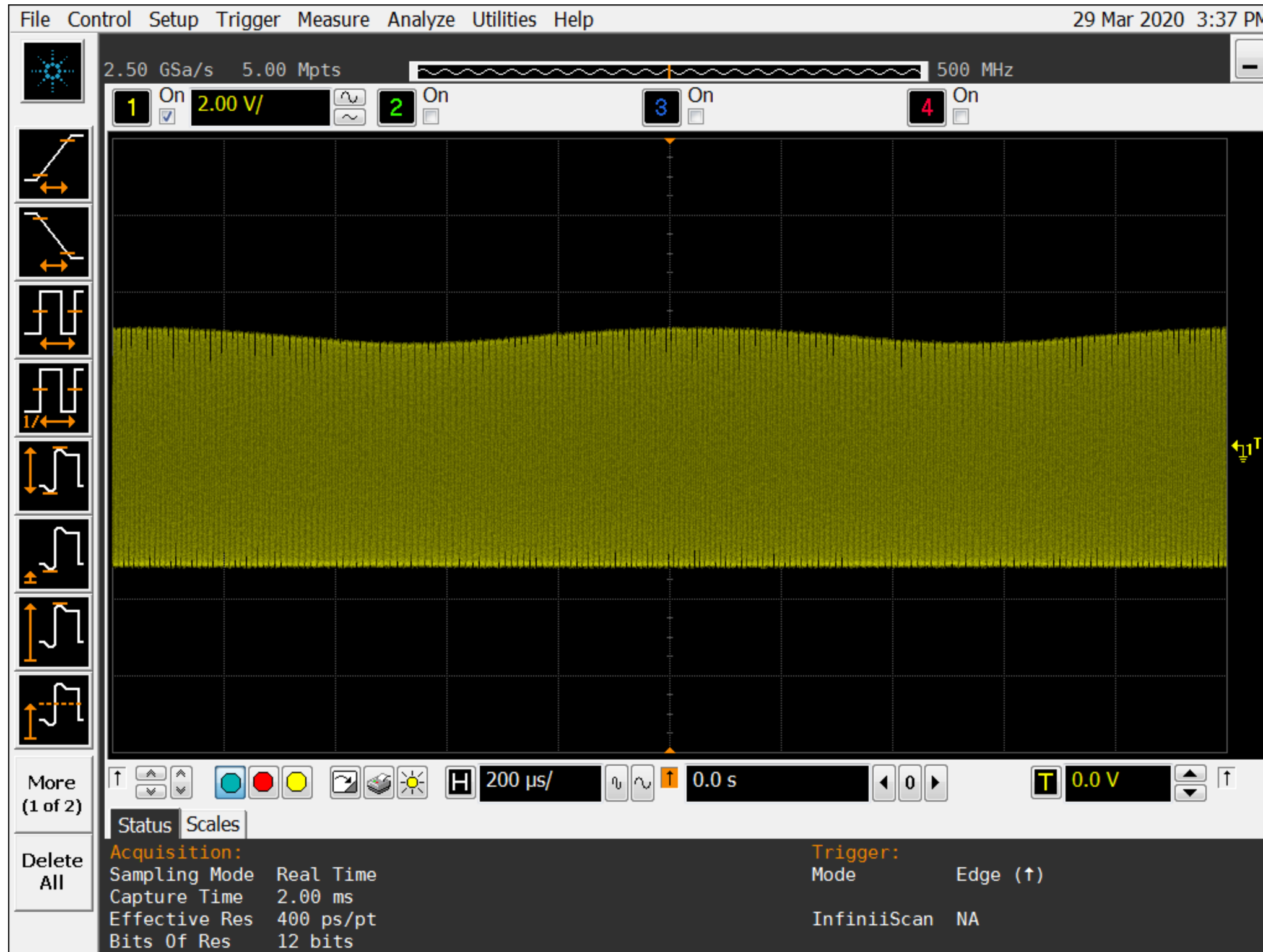


Response to 1kHz 1Vpp
sinusoidal signal

Is this as expected?

What's happening?

Measurement results follower



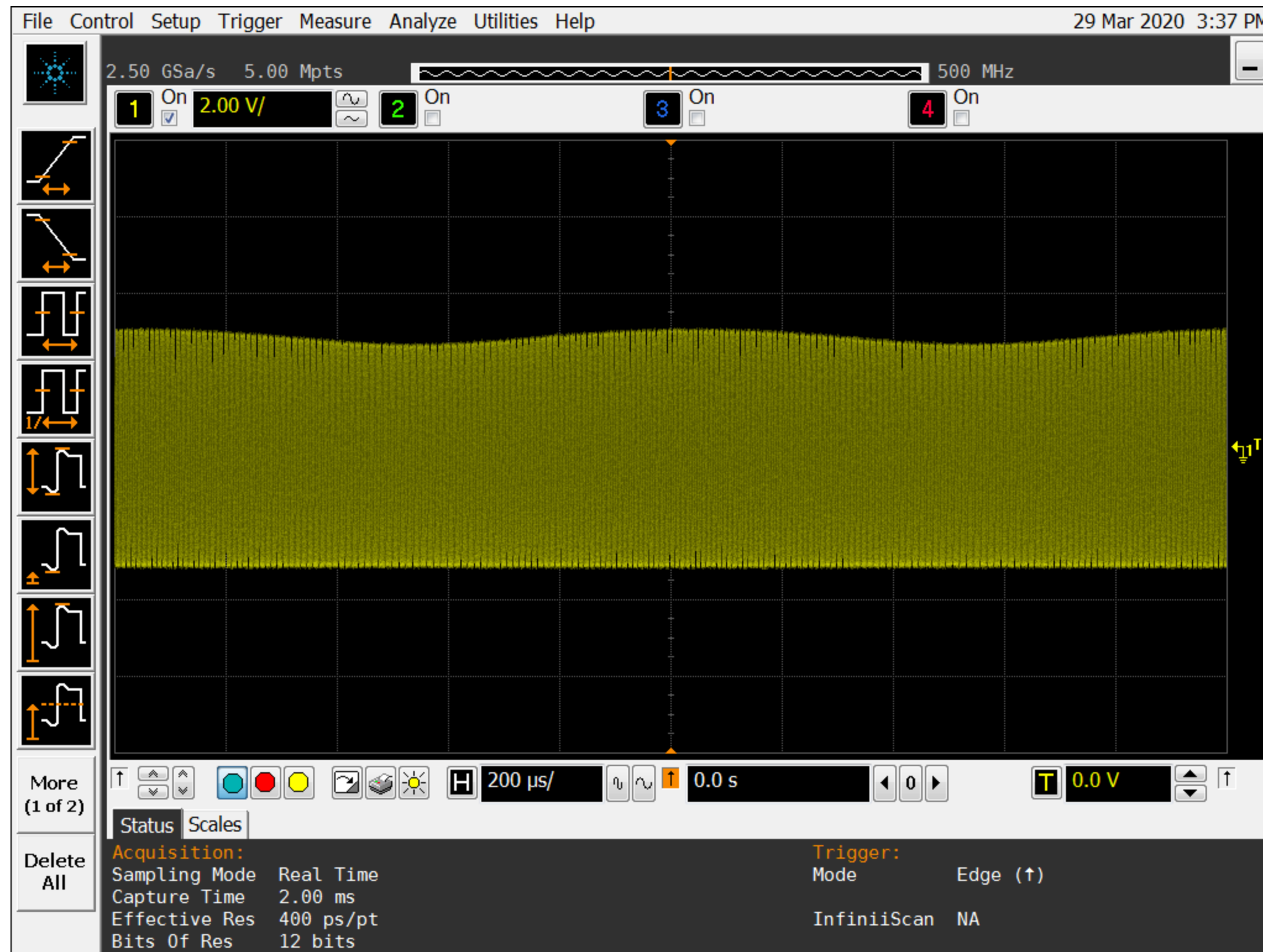
Response to 1kHz 1Vpp
sinusoidal signal

Is this as expected?

What's happening?

How can it be resolved?

Measurement results follower



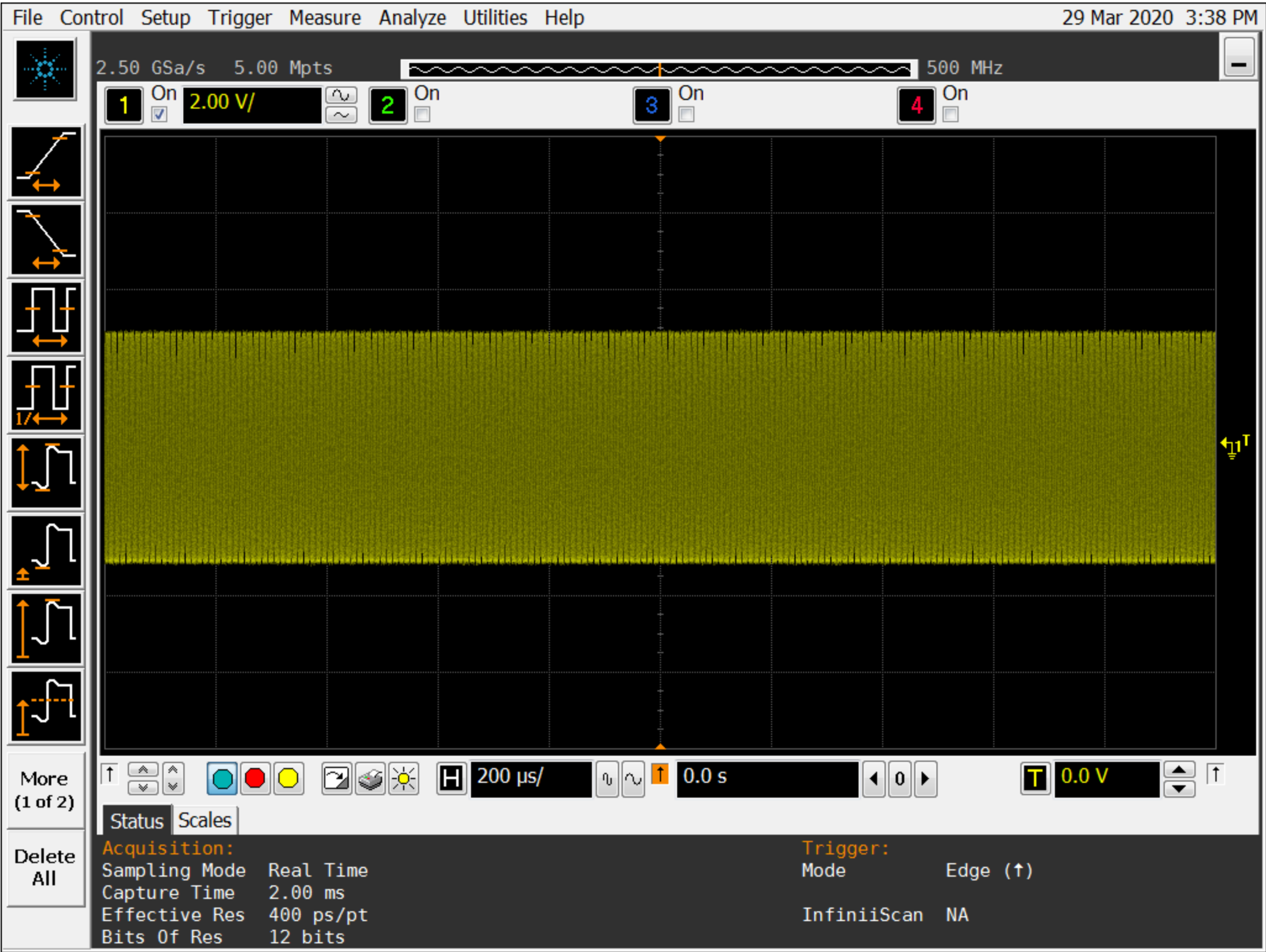
Response to 1kHz 1Vpp sinusoidal signal

Is this as expected?

What's happening?

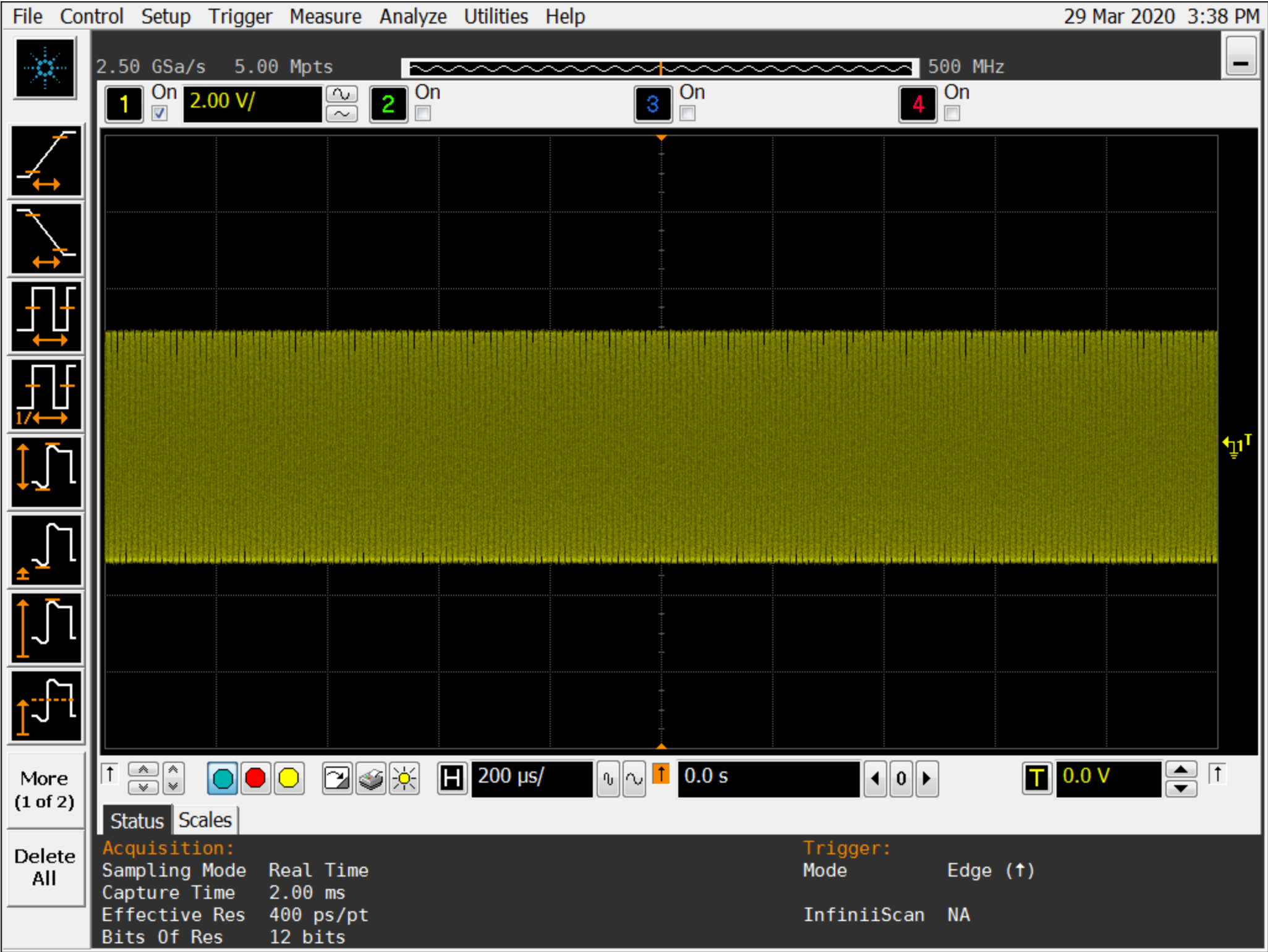
How can it be resolved?

Measurement results follower



Output signal @ no input signal

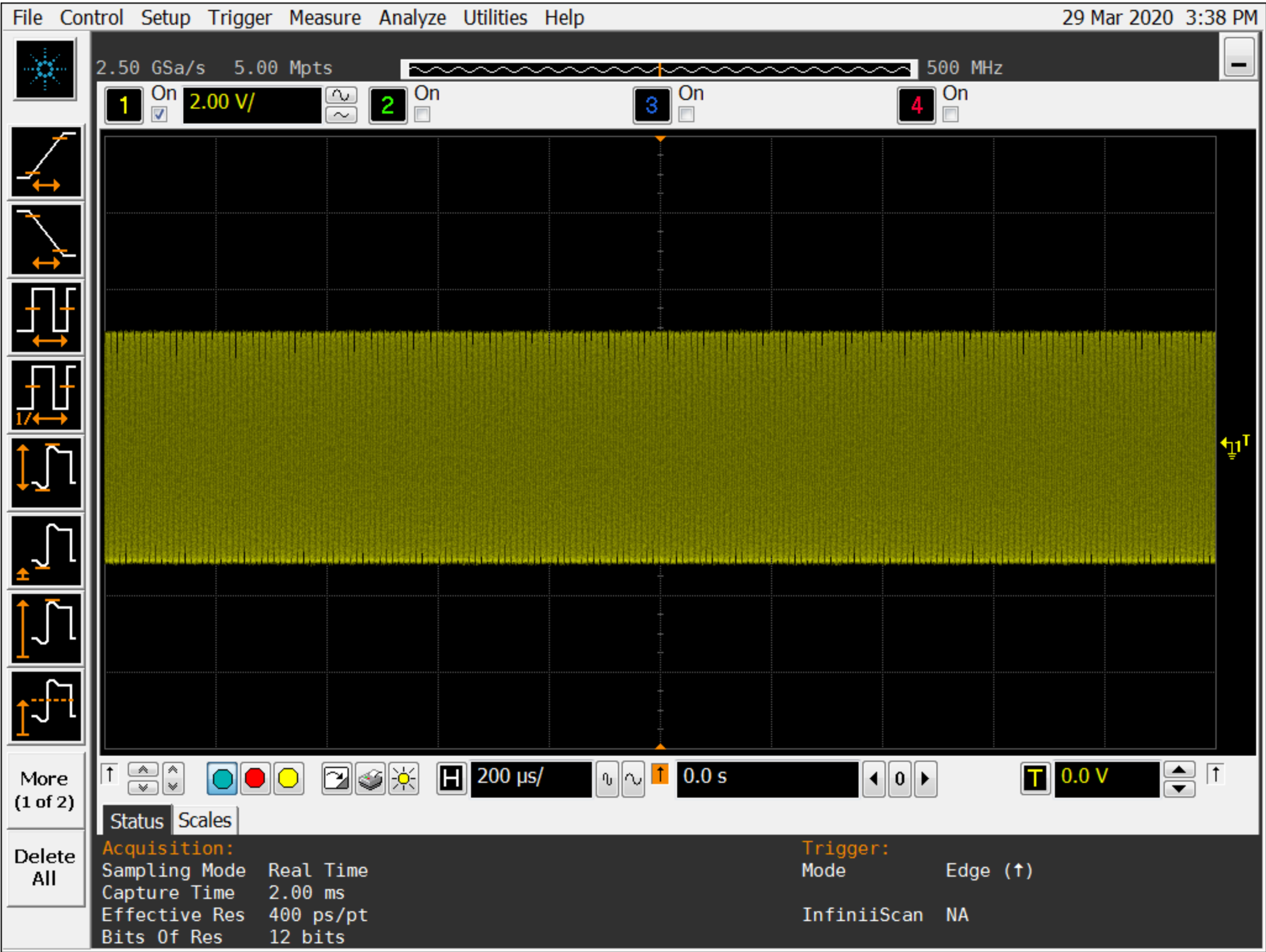
Measurement results follower



Output signal @ no input signal

Our amplifier appears to be an oscillator.

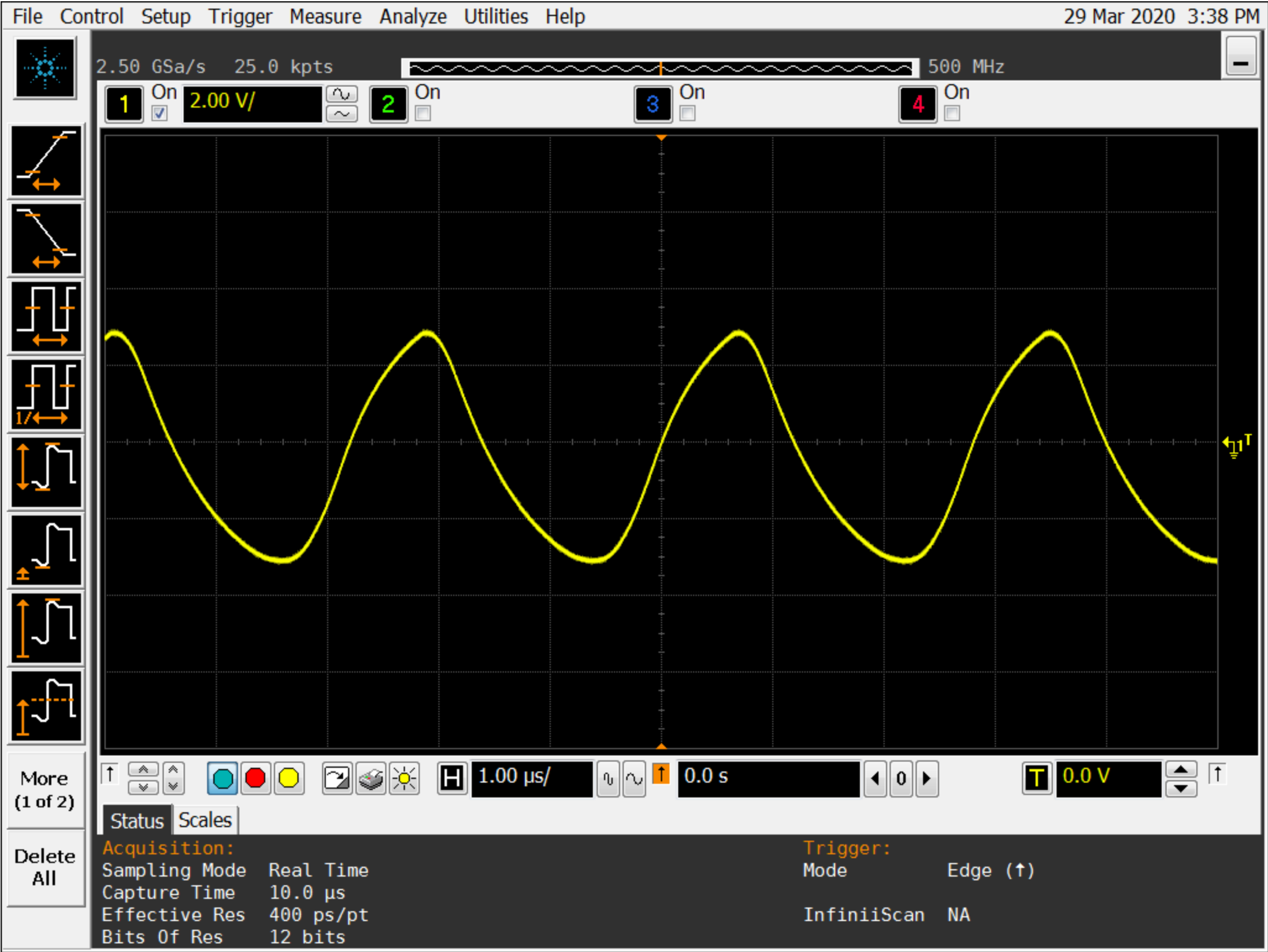
Measurement results follower



Output signal @ no input signal

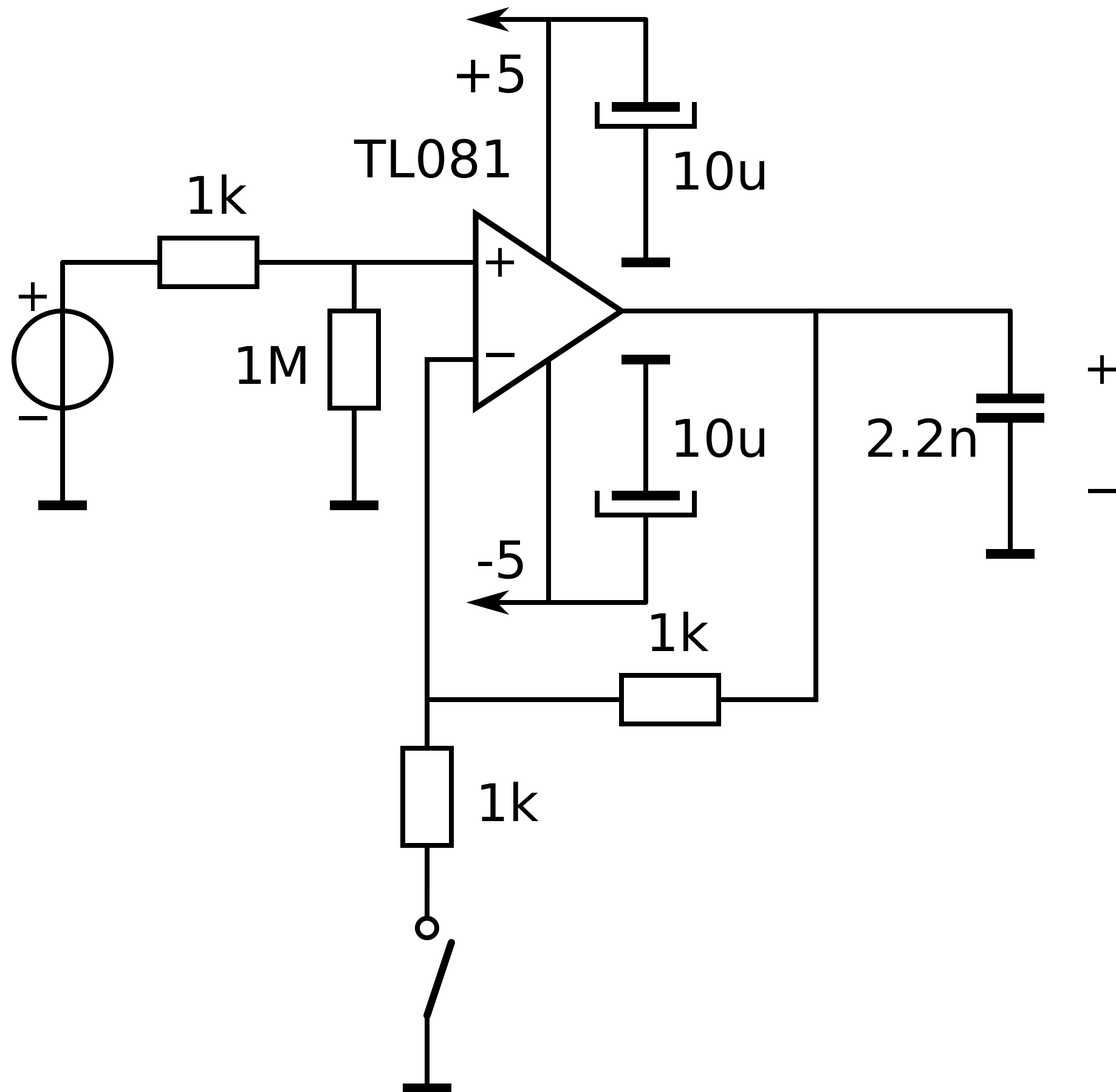
Our amplifier appears to be an oscillator.

Measurement results follower

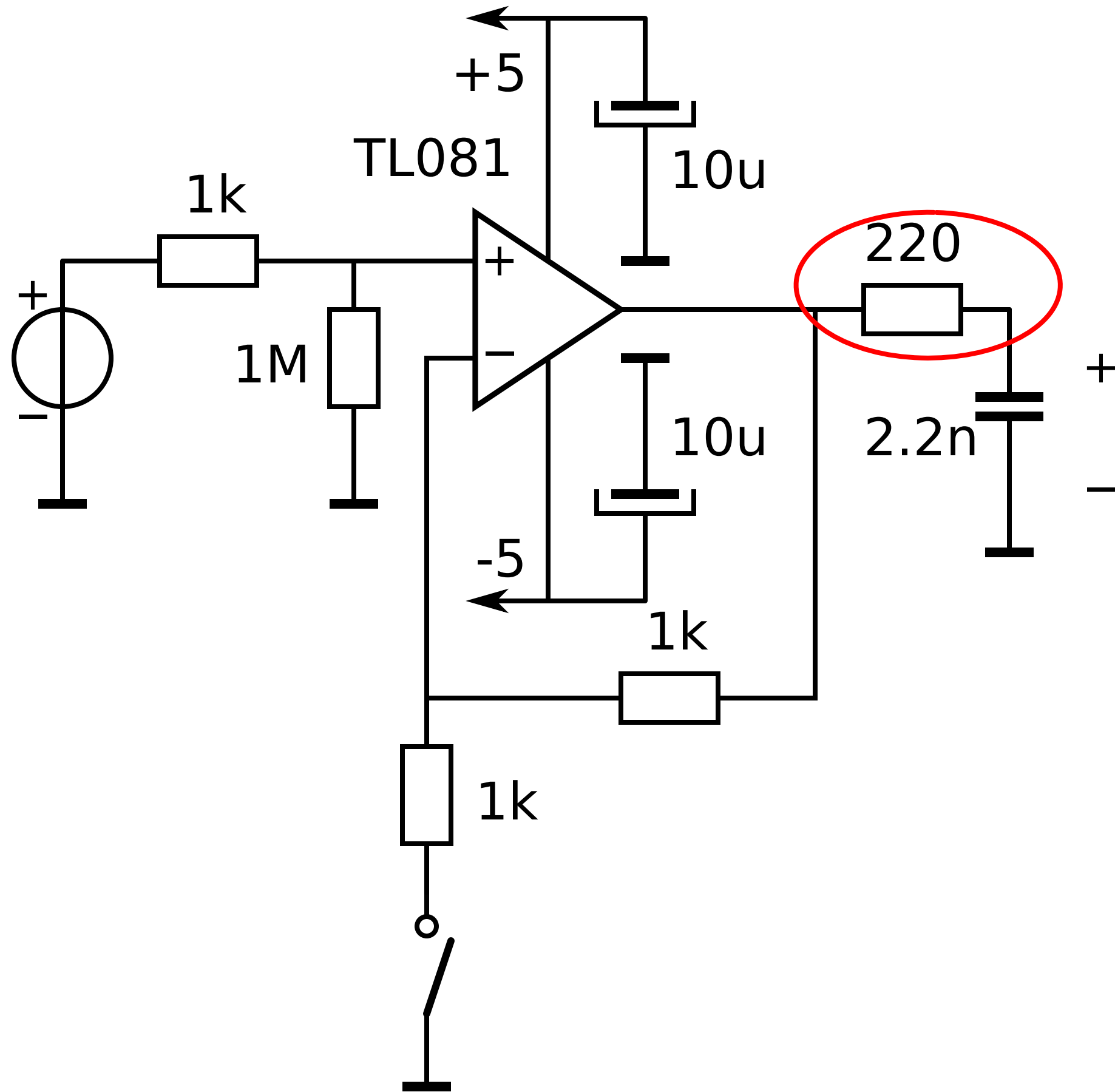


Output signal @ no input signal
(detail)

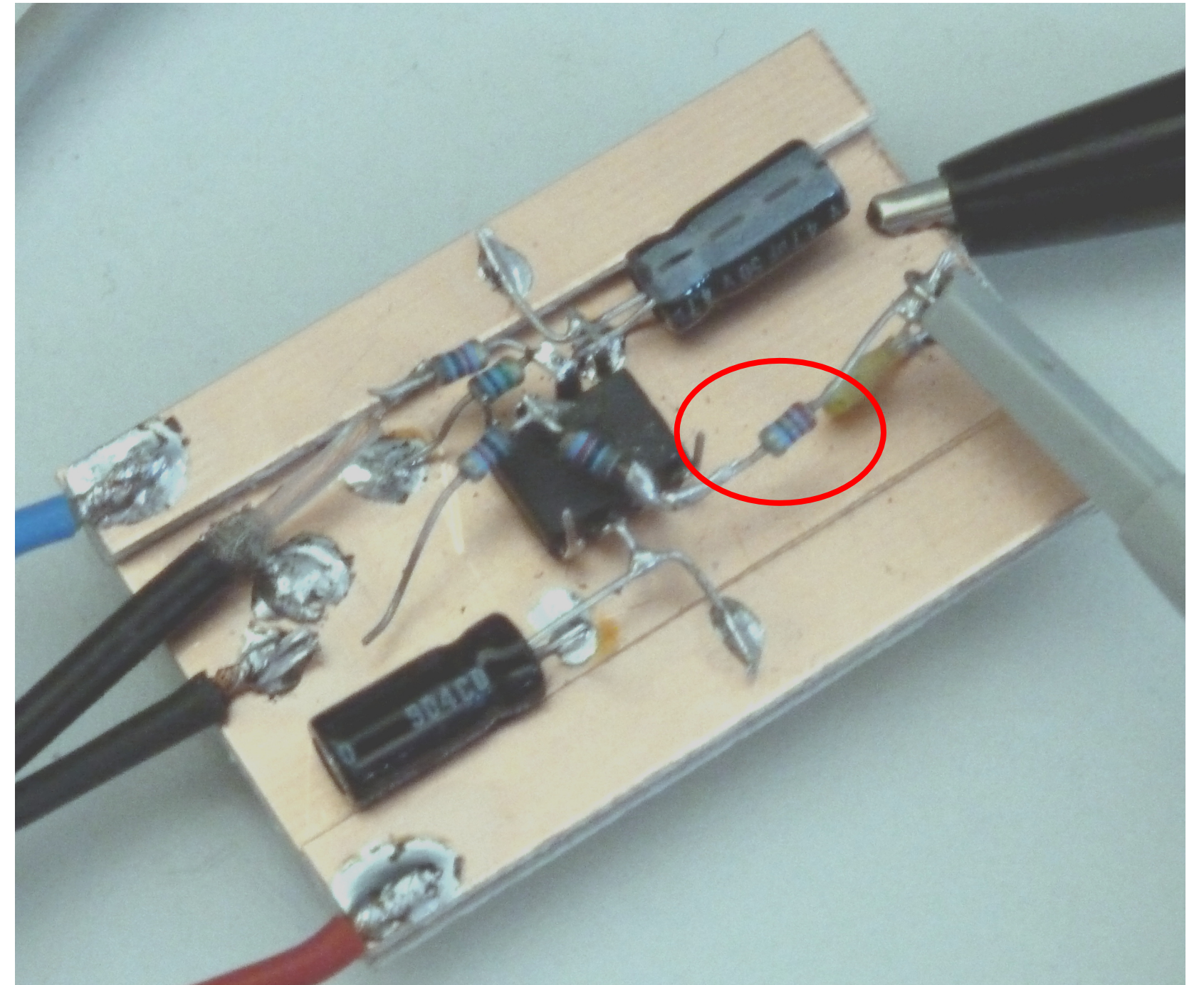
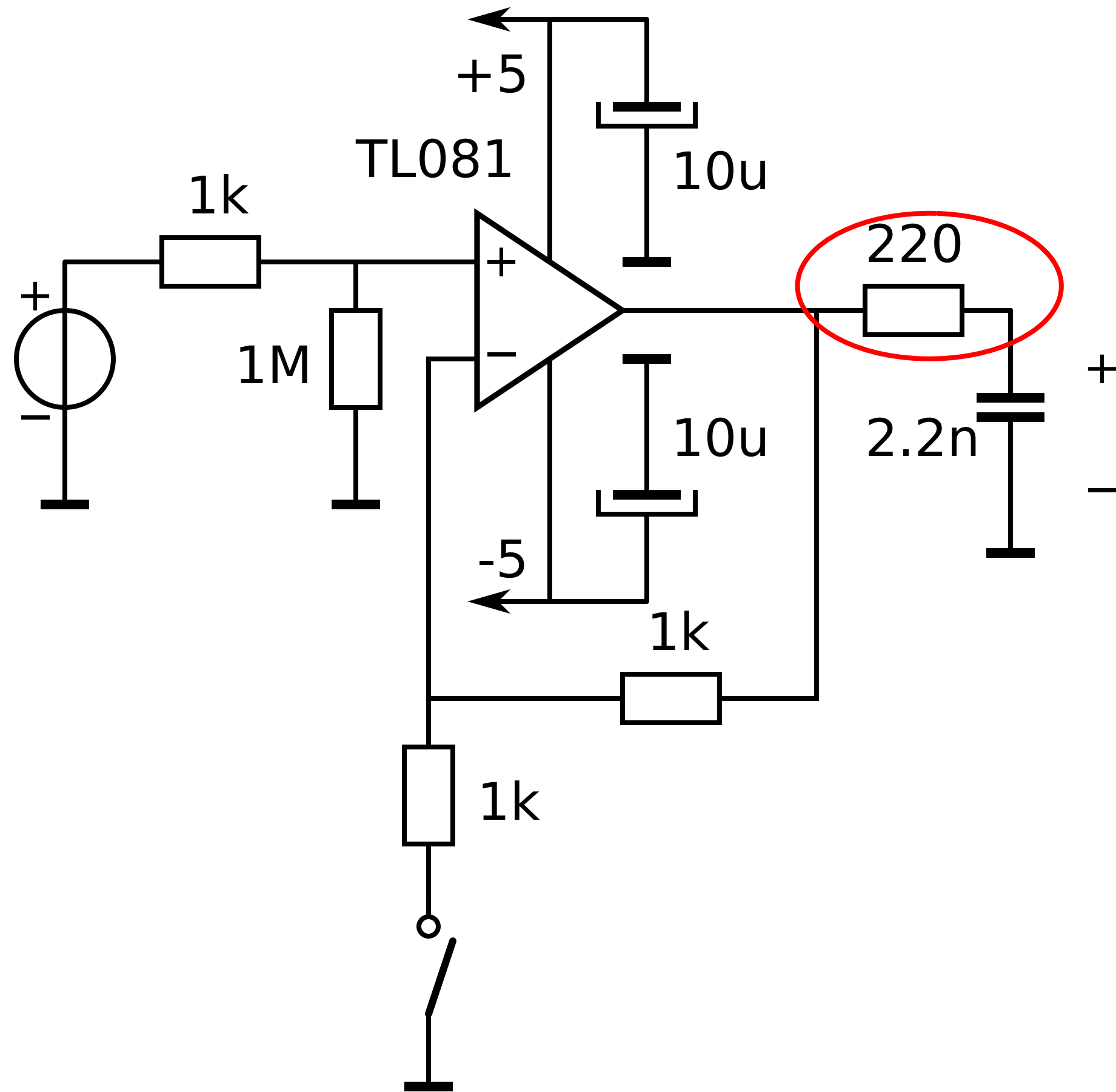
Frequency compensation



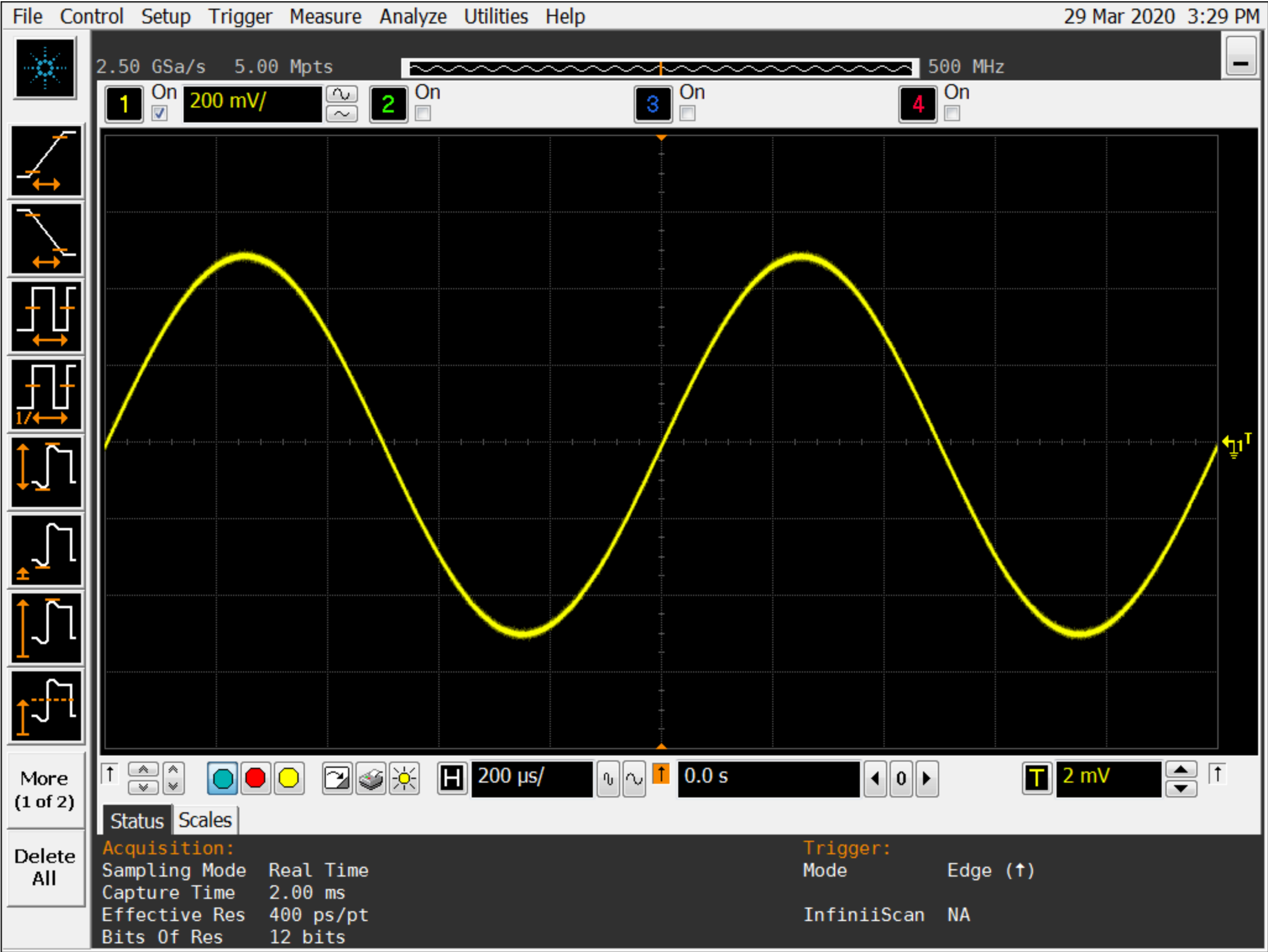
Frequency compensation



Frequency compensation

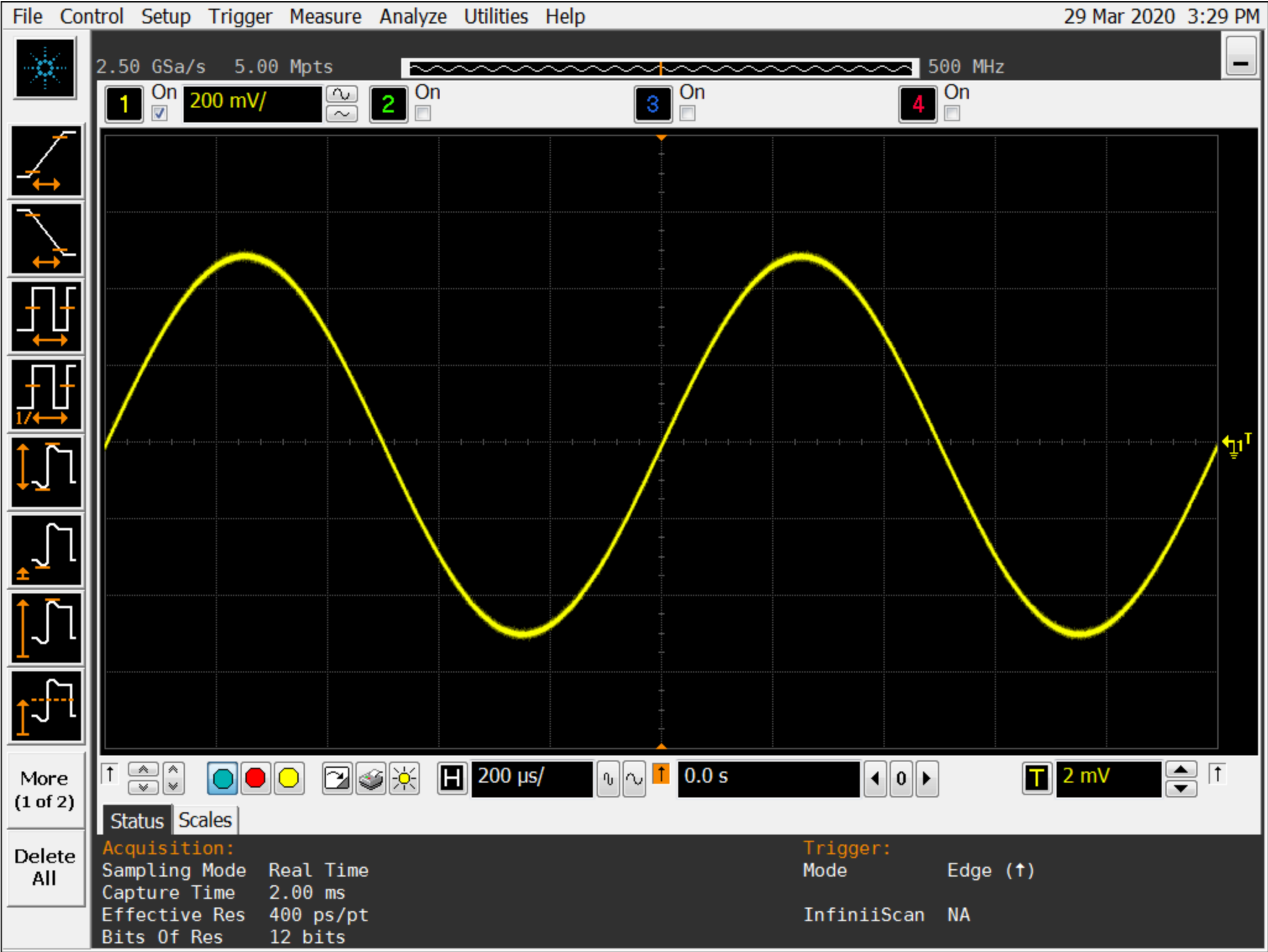


Measurement results follower



Response to 1kHz 1Vpp sinusoidal signal after compensation

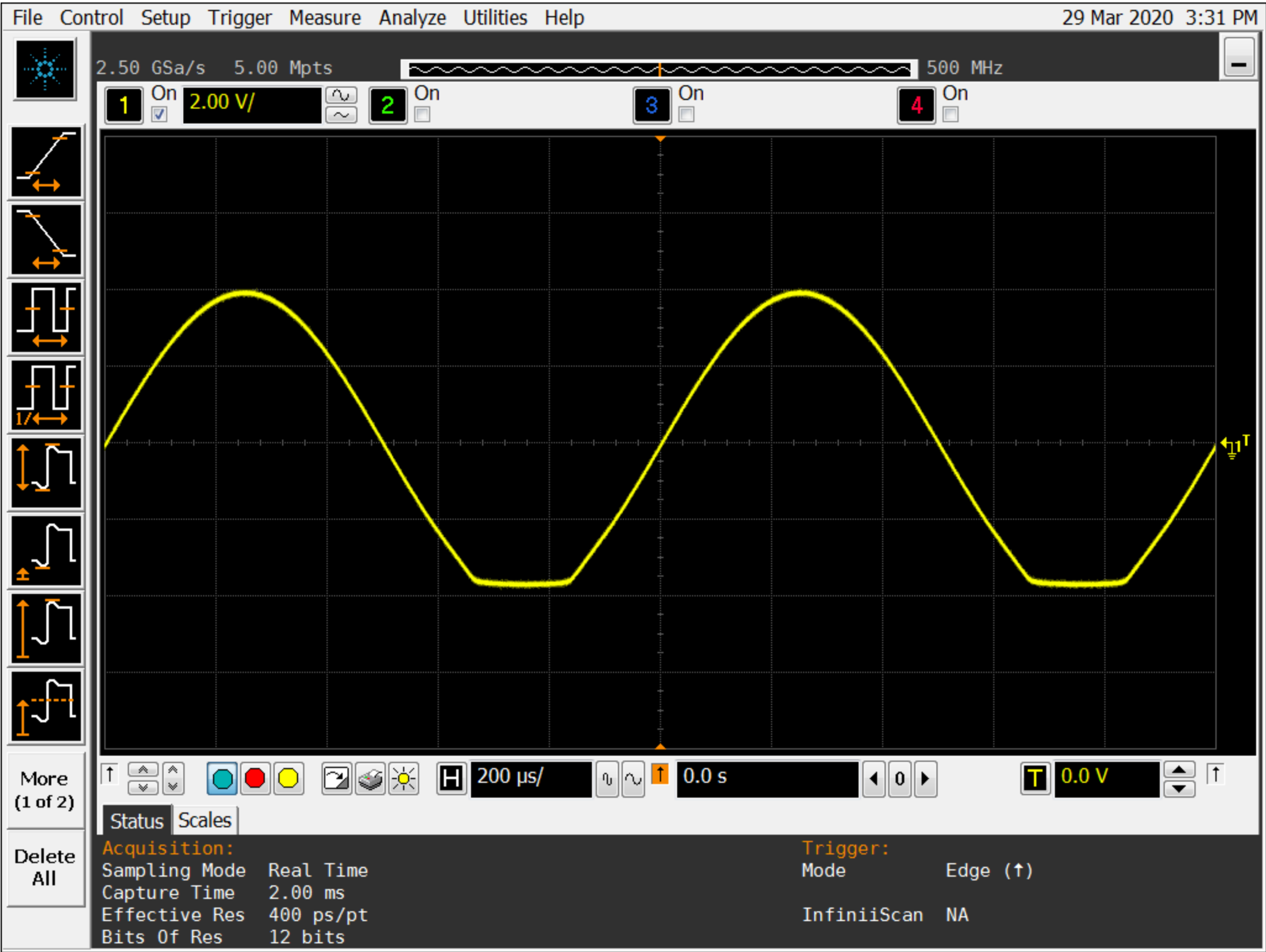
Measurement results follower



Response to 1kHz 1Vpp
sinusoidal signal after
compensation

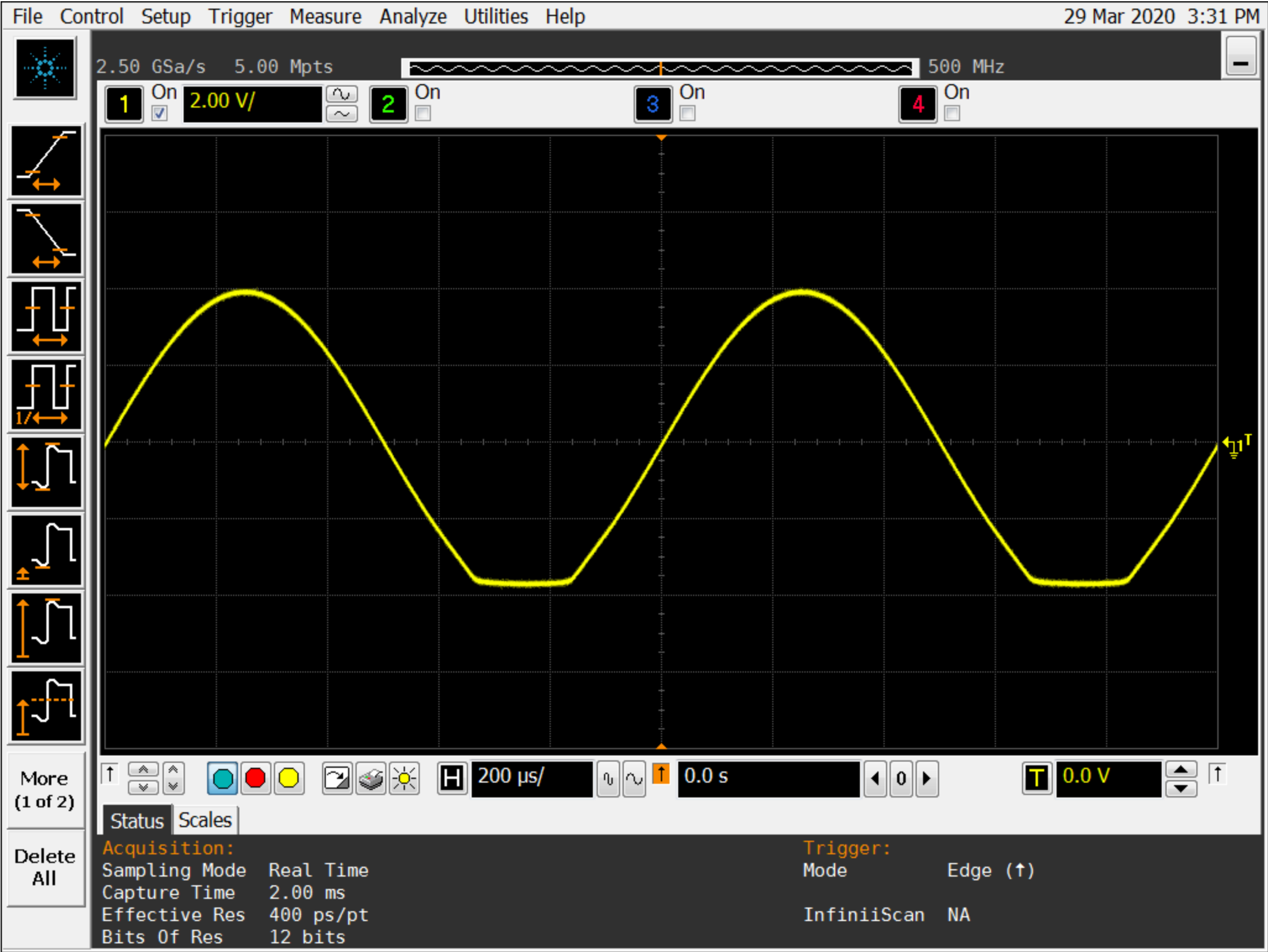
Let's increase the amplitude
to 8Vpp

Measurement results follower



Response to 1kHz 8Vpp
sinusoidal signal after
compensation

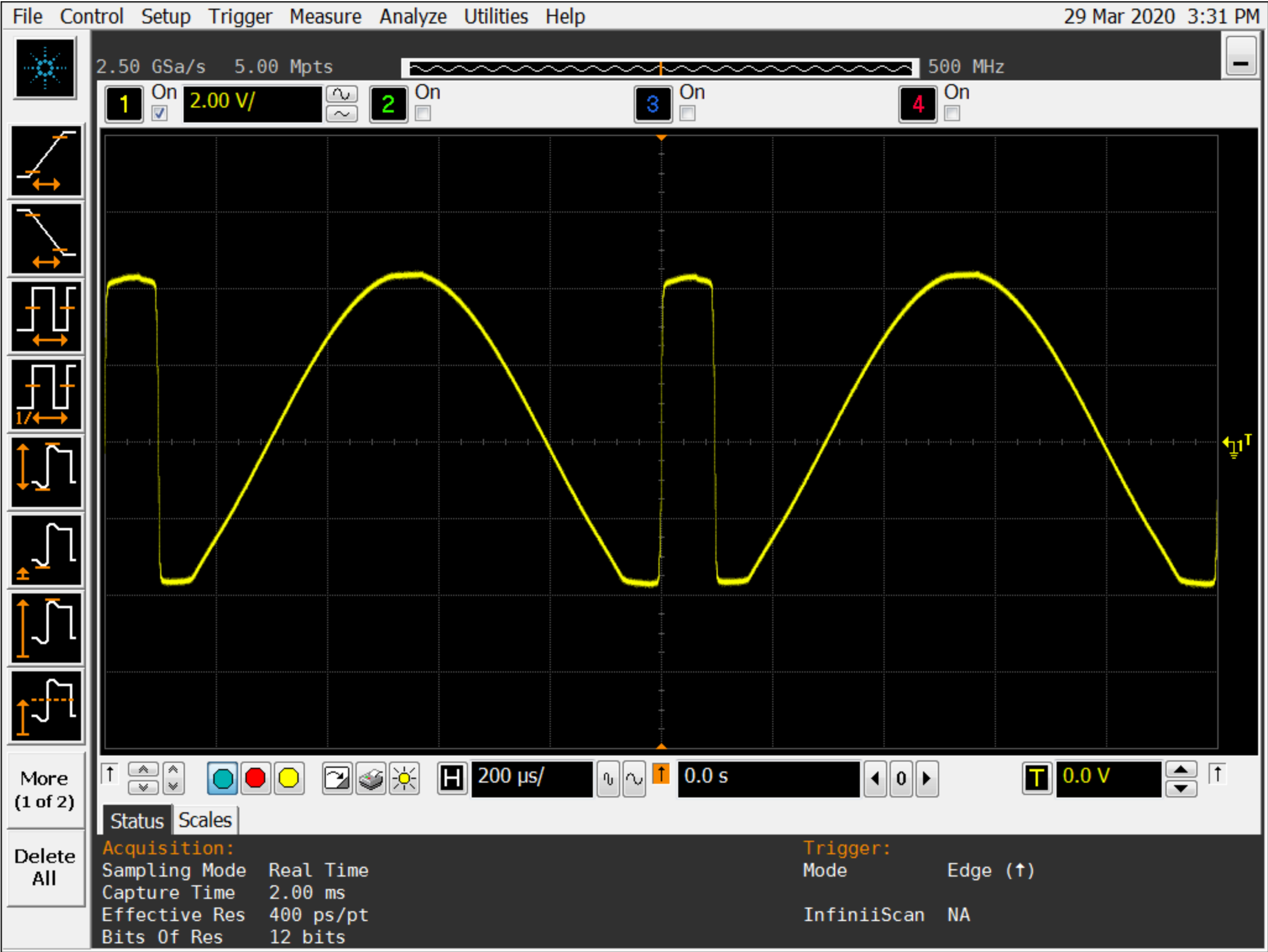
Measurement results follower



Response to 1kHz 8Vpp sinusoidal signal after compensation

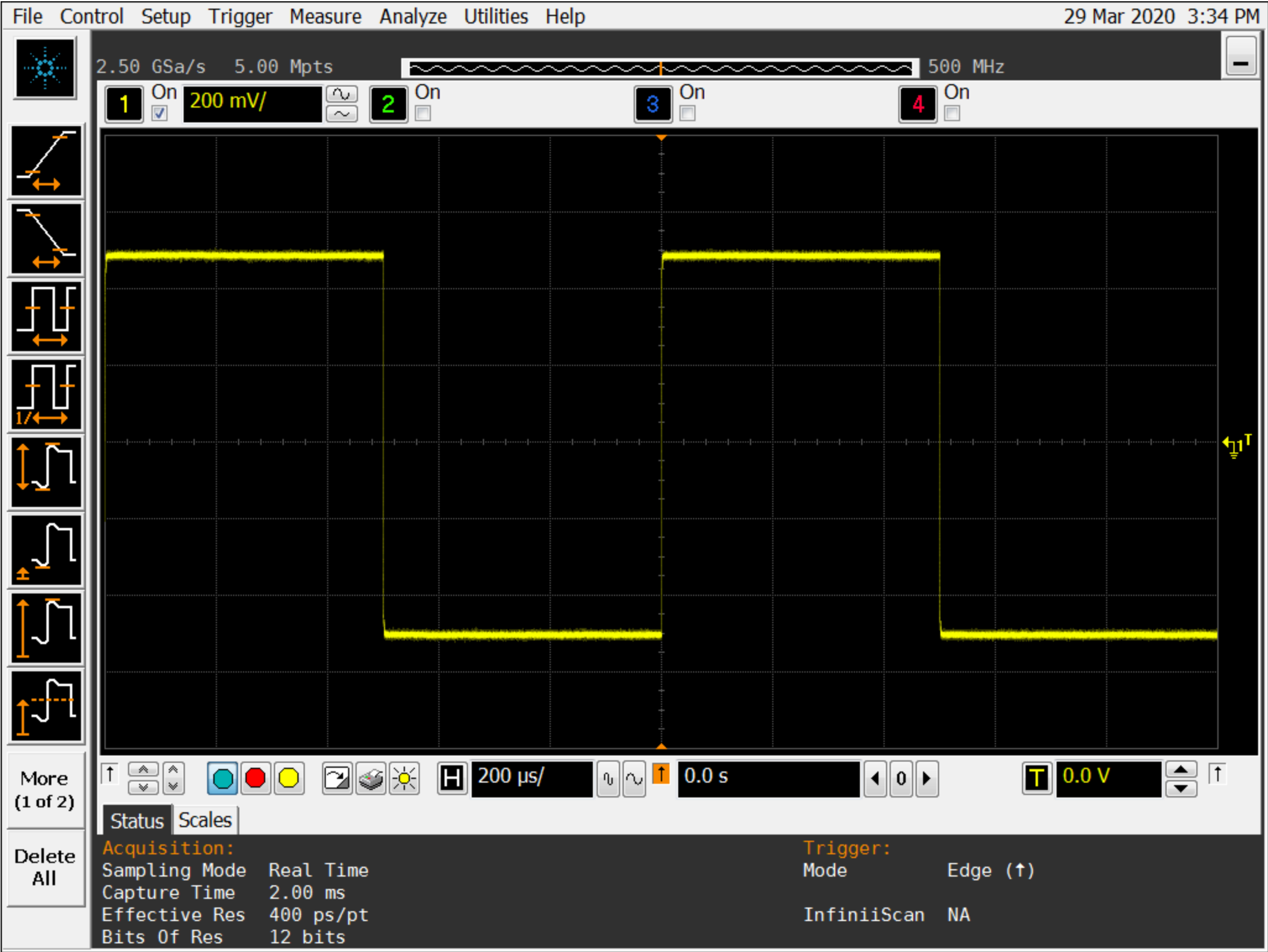
Let's increase the amplitude to 9Vpp

Measurement results follower



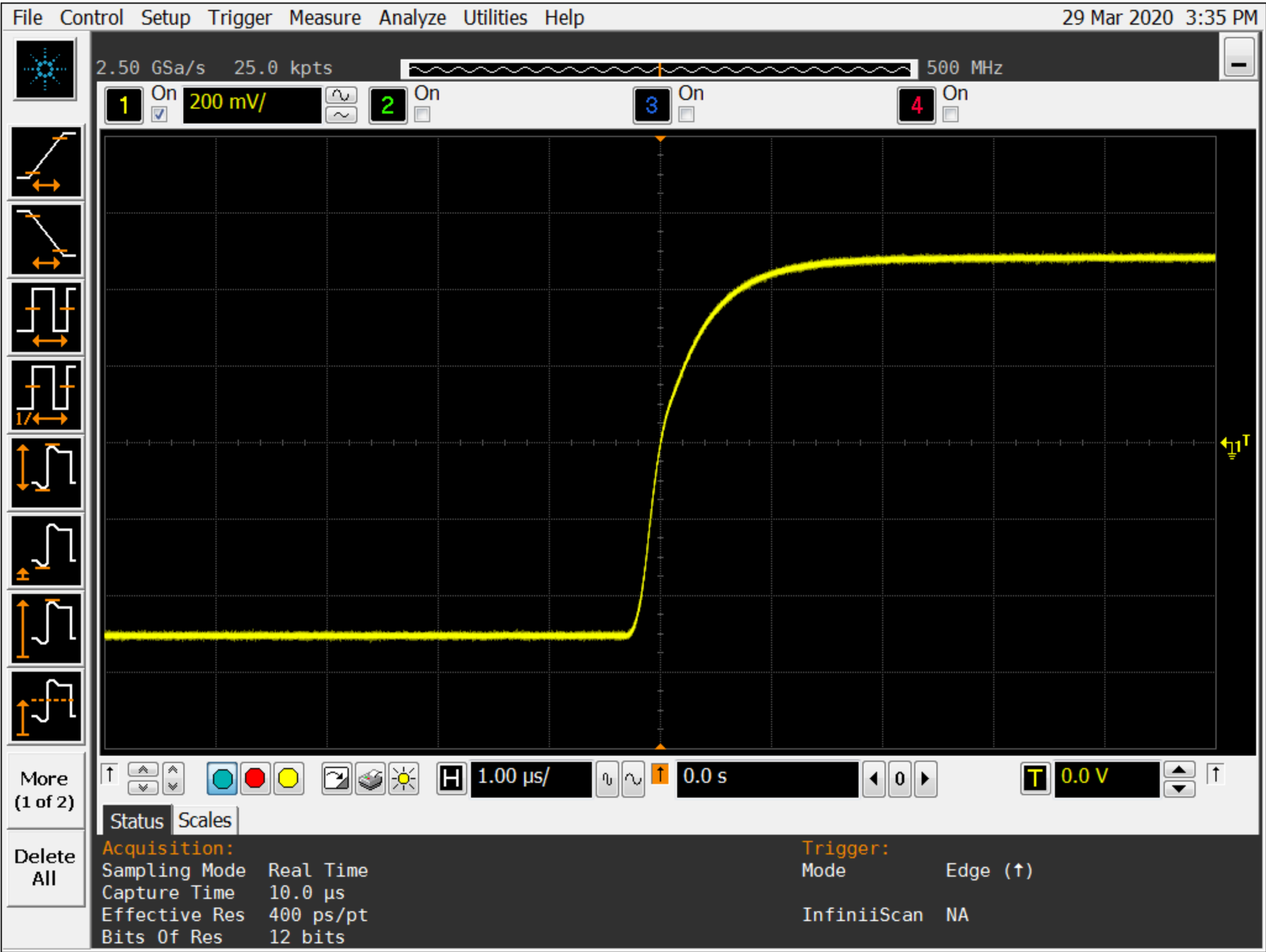
Response to 1kHz 9Vpp sinusoidal signal after compensation

Measurement results follower



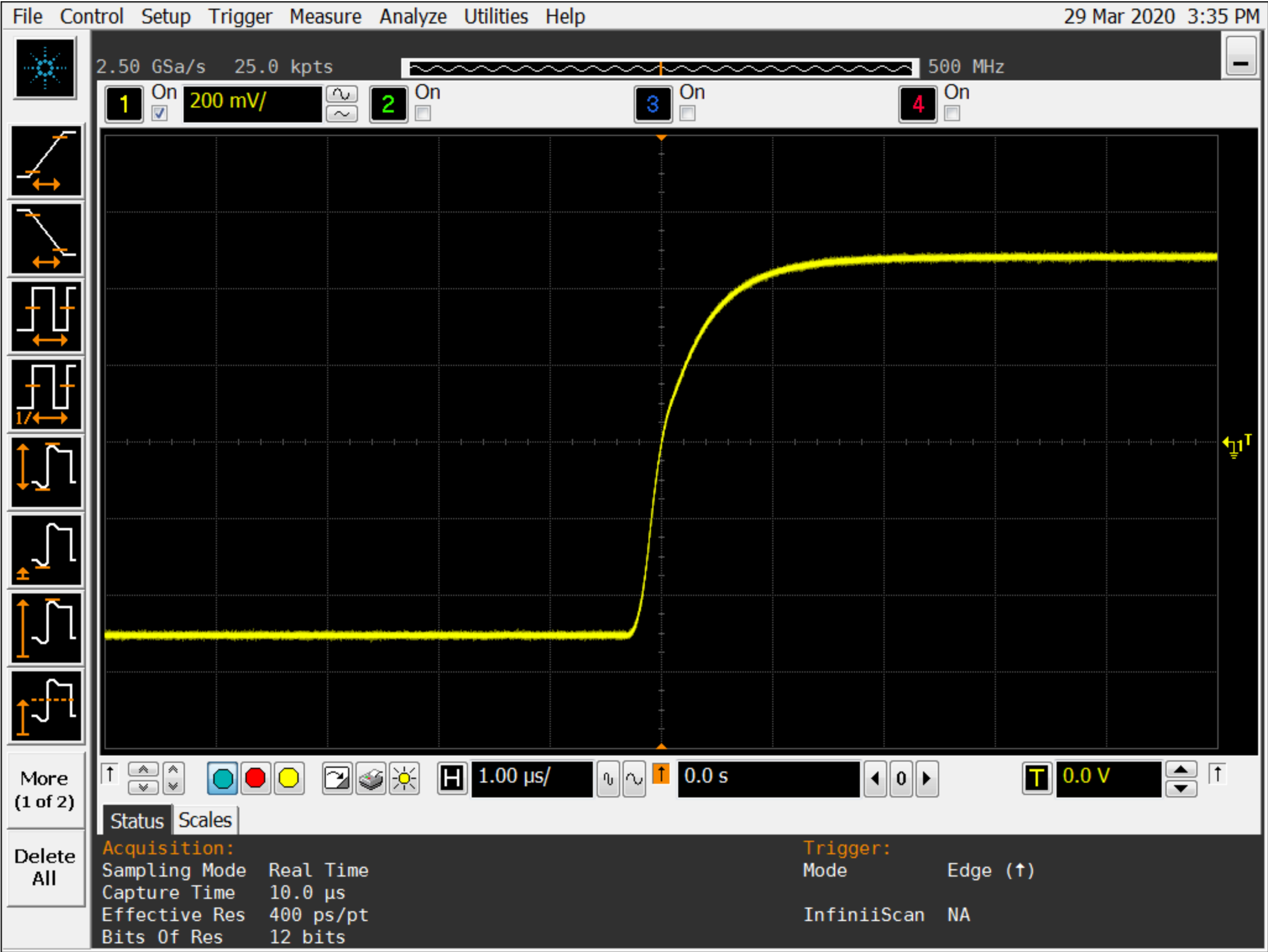
Response to 1kHz 1Vpp square wave signal after compensation

Measurement results follower



Response to 1kHz 1Vpp square wave signal after compensation (detail)

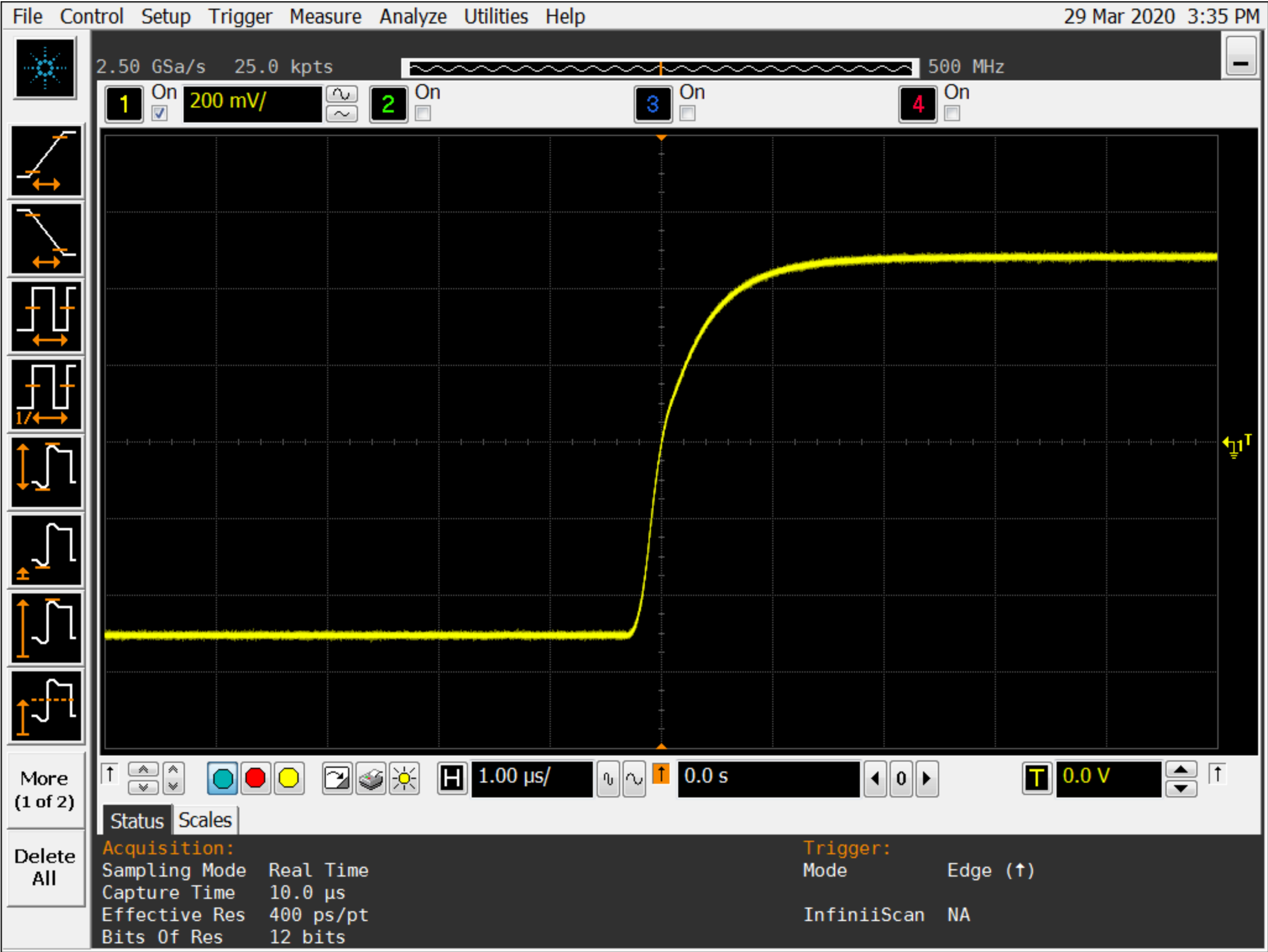
Measurement results follower



Response to 1kHz 1Vpp square wave signal after compensation (detail)

Frequency compensation not optimized for Butterworth

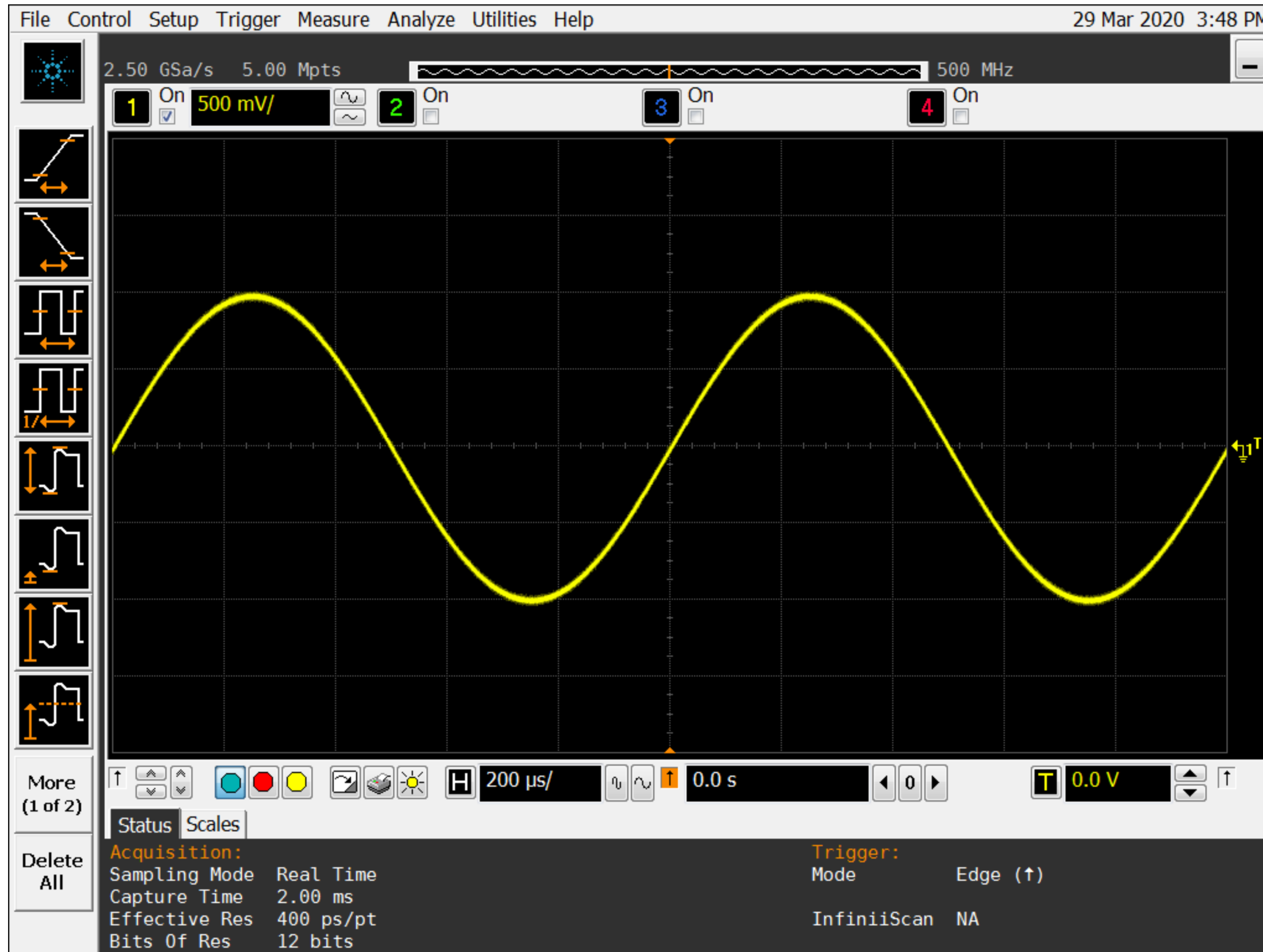
Measurement results follower



Response to 1kHz 1Vpp square wave signal after compensation (detail)

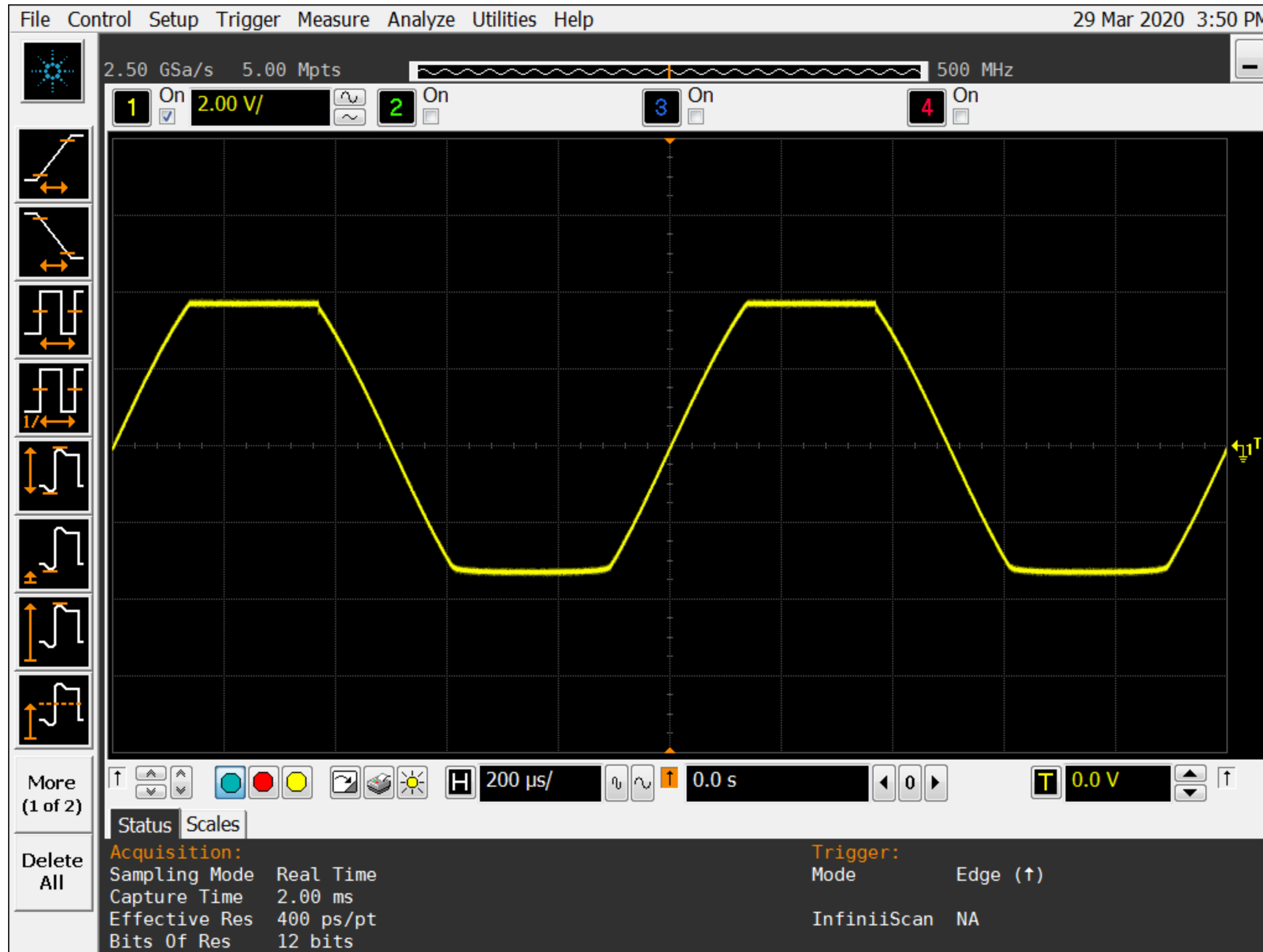
Frequency compensation not optimized for Butterworth

Measurement results gain=2



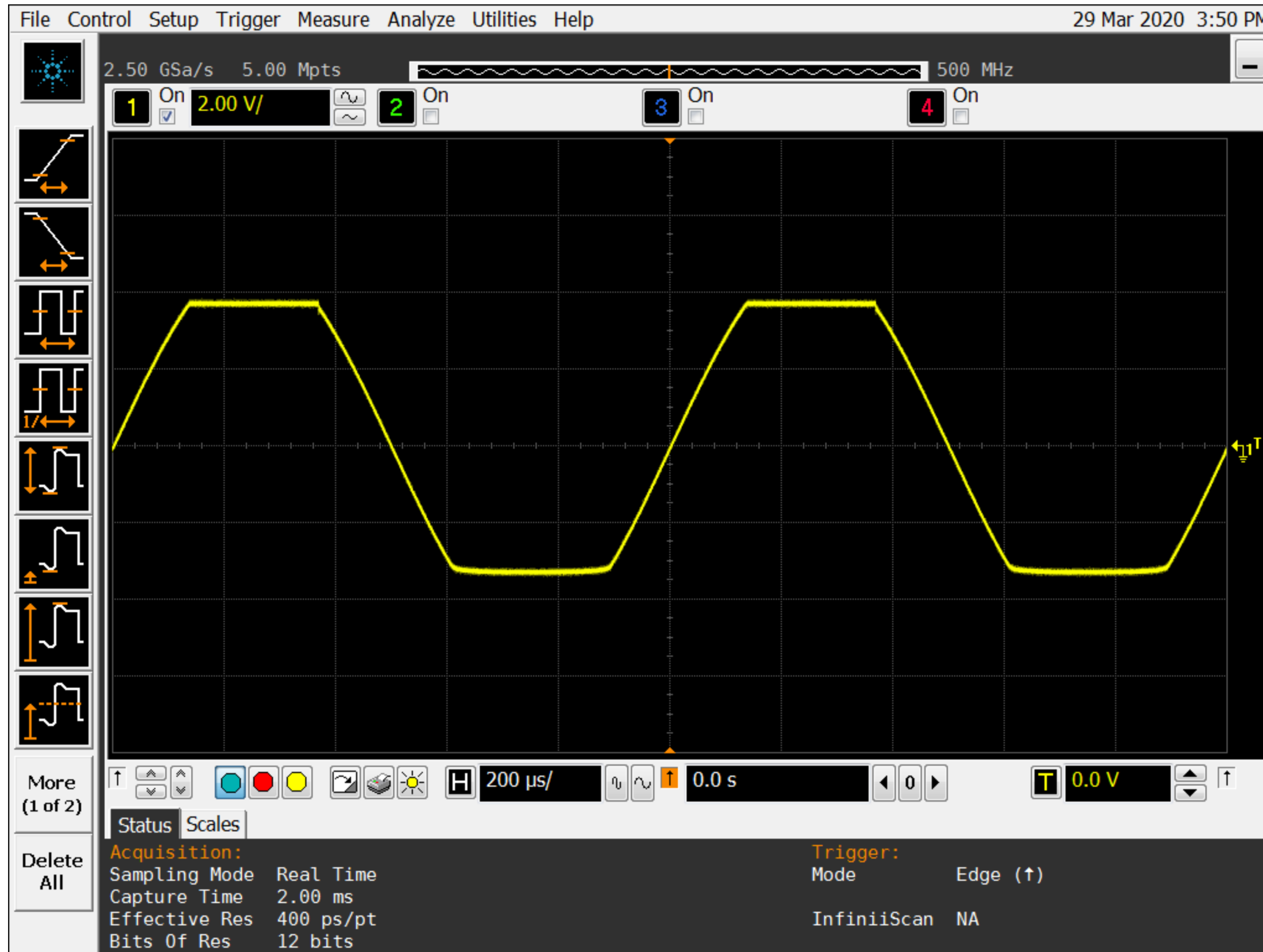
Response to 1kHz 1Vpp
sinusoidal signal

Measurement results gain=2



Response to 1kHz 5Vpp sinusoidal signal

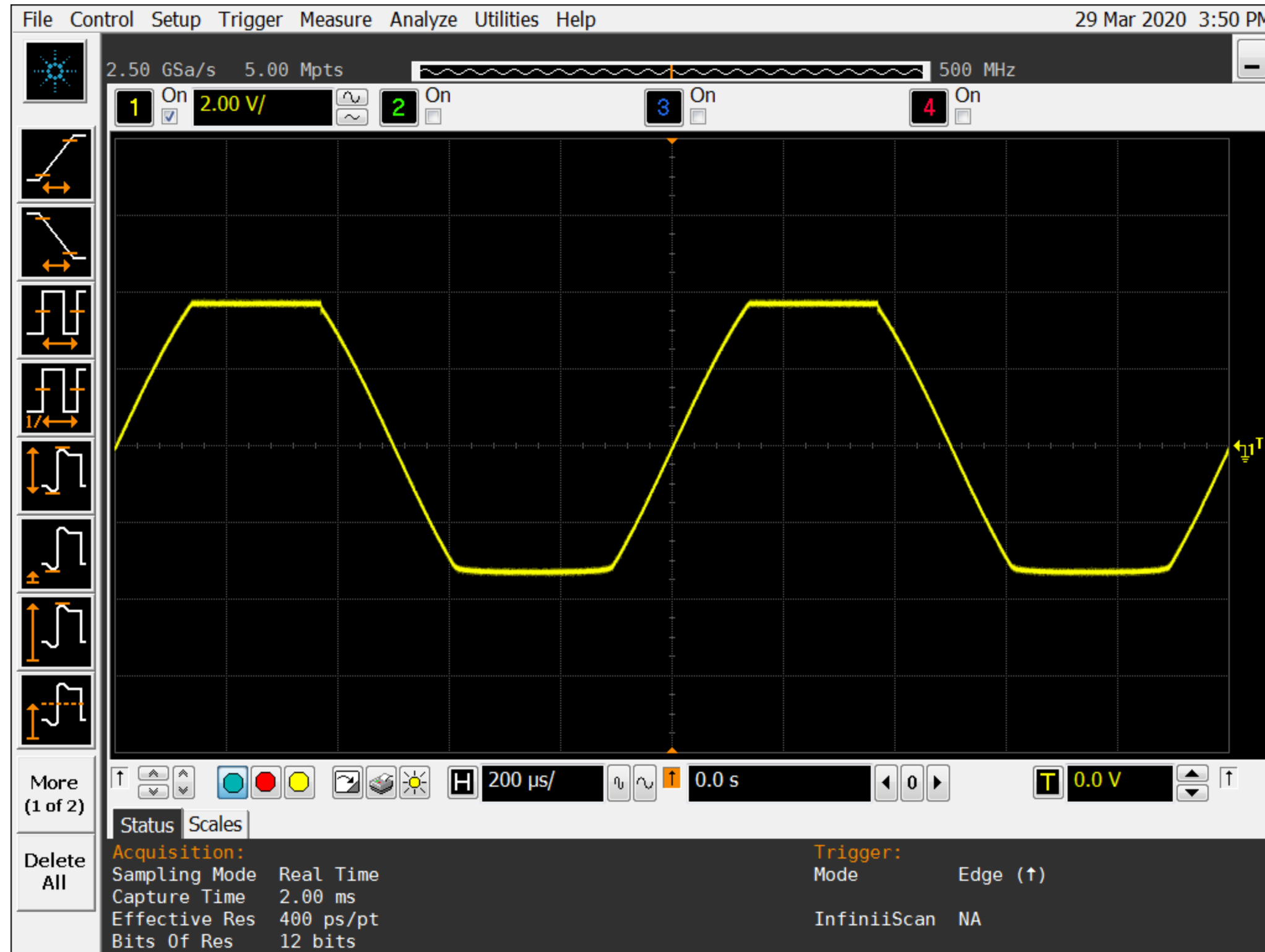
Measurement results gain=2



Response to 1kHz 5Vpp
sinusoidal signal

Output clipping, common-
mode input voltage range
not exceeded

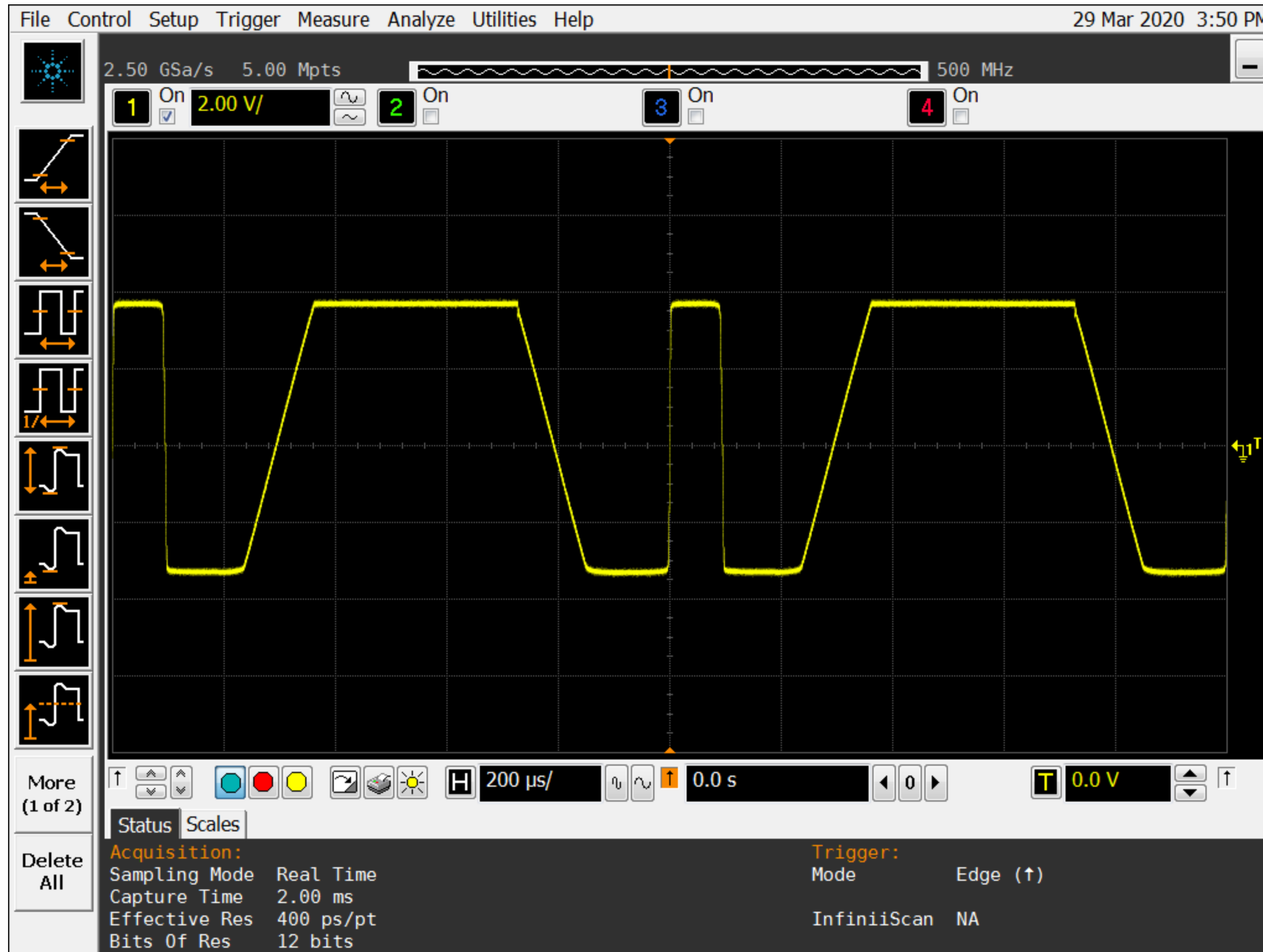
Measurement results gain=2



Response to 1kHz 5Vpp
sinusoidal signal

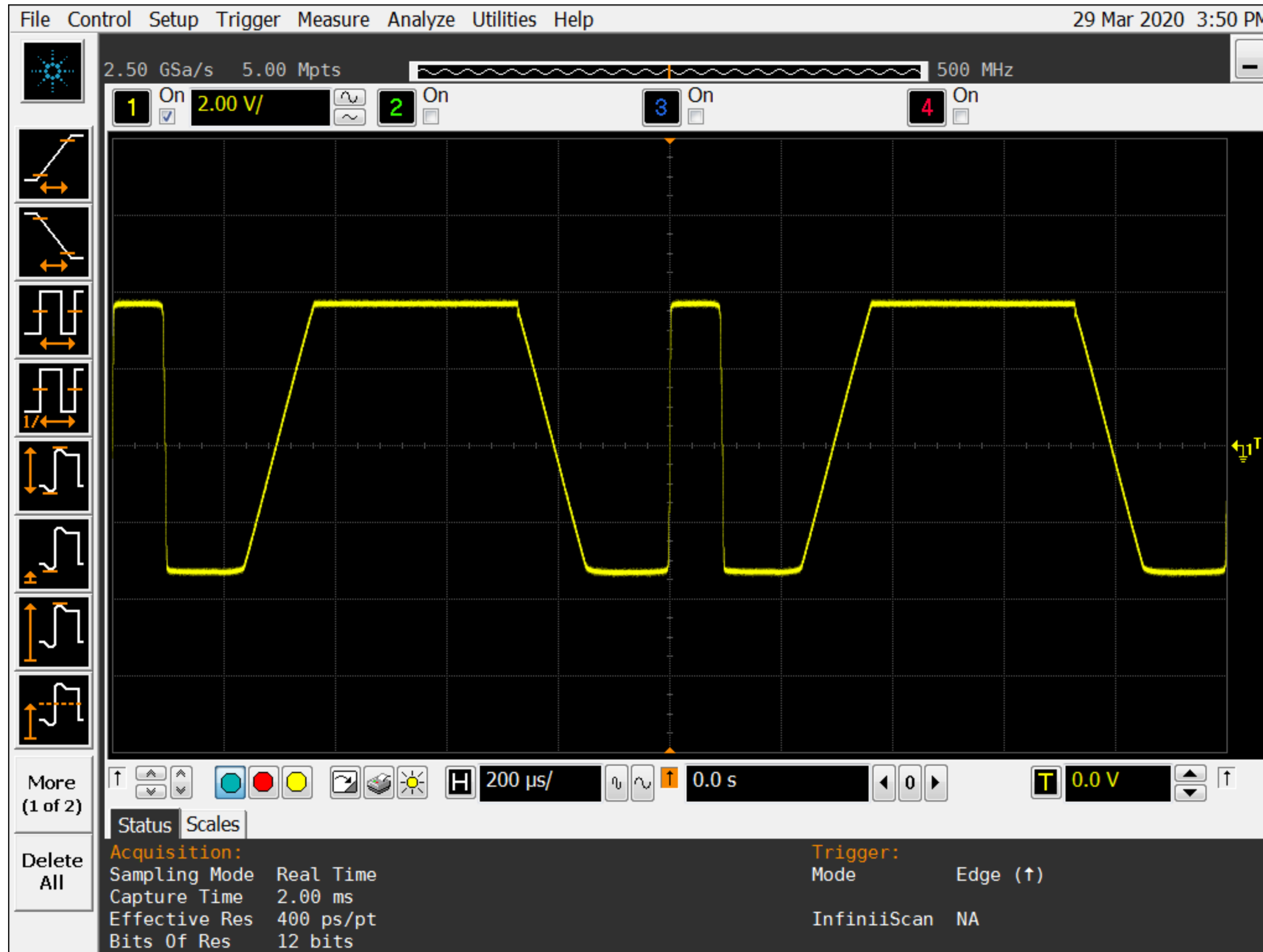
Output clipping, common-
mode input voltage range
not exceeded

Measurement results gain=2



Response to 1kHz 9Vpp
sinusoidal signal

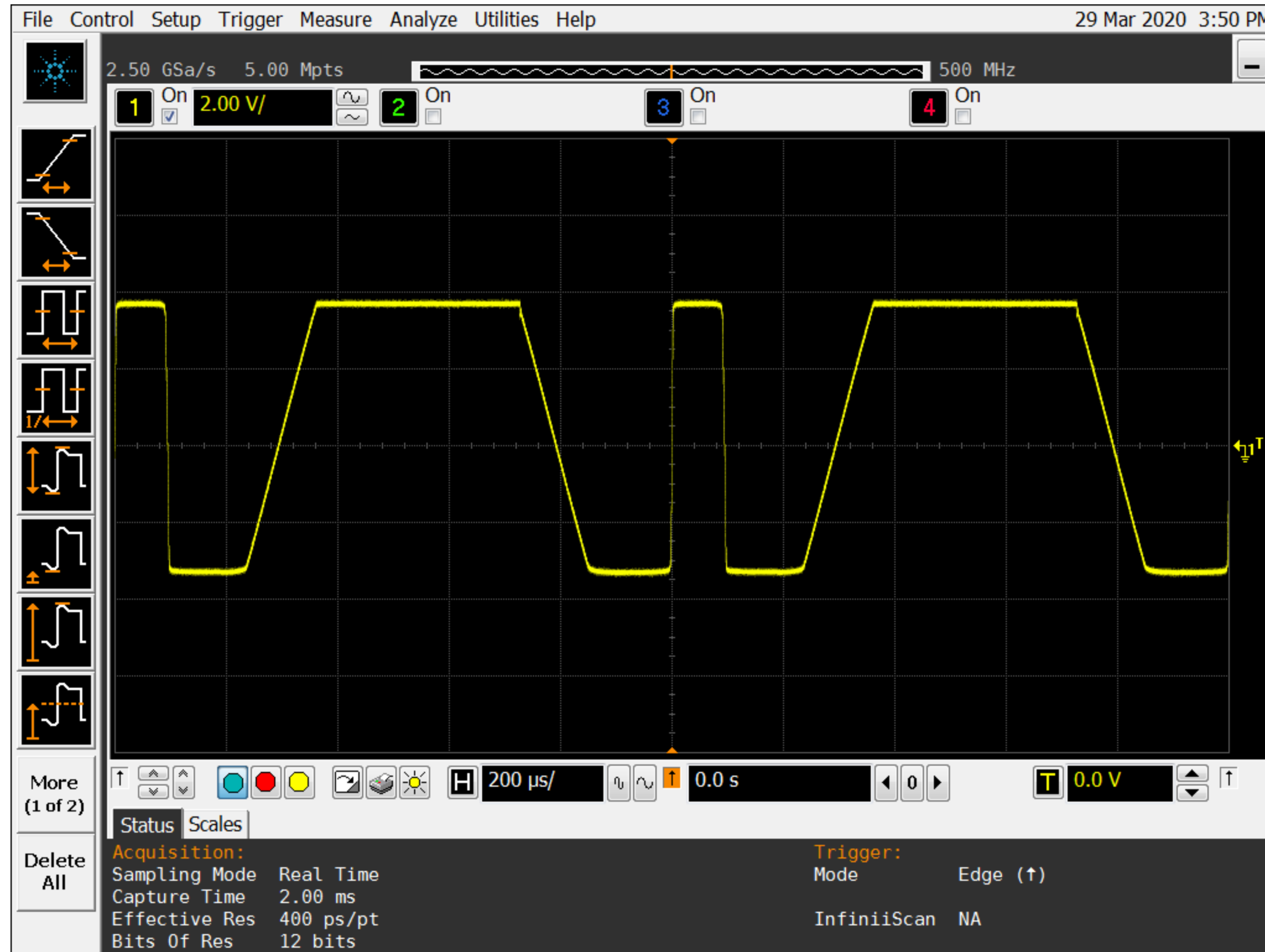
Measurement results gain=2



Response to 1kHz 9Vpp
sinusoidal signal

Output clipping, and
common-mode input
voltage range exceeded

Measurement results gain=2



Response to 1kHz 9Vpp
sinusoidal signal

Output clipping, and
common-mode input
voltage range exceeded