# Processor simulation status + a few other interesting things…

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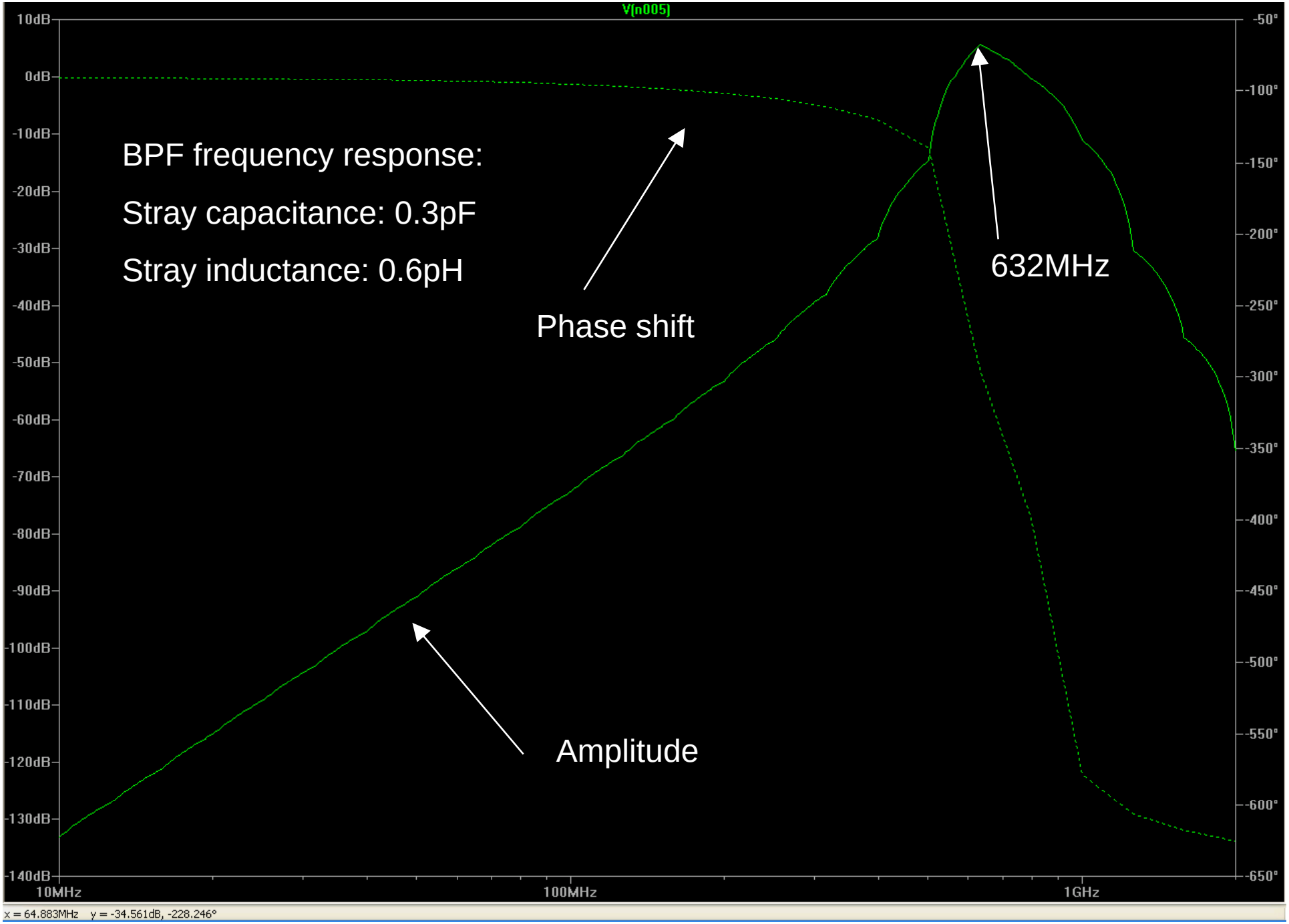
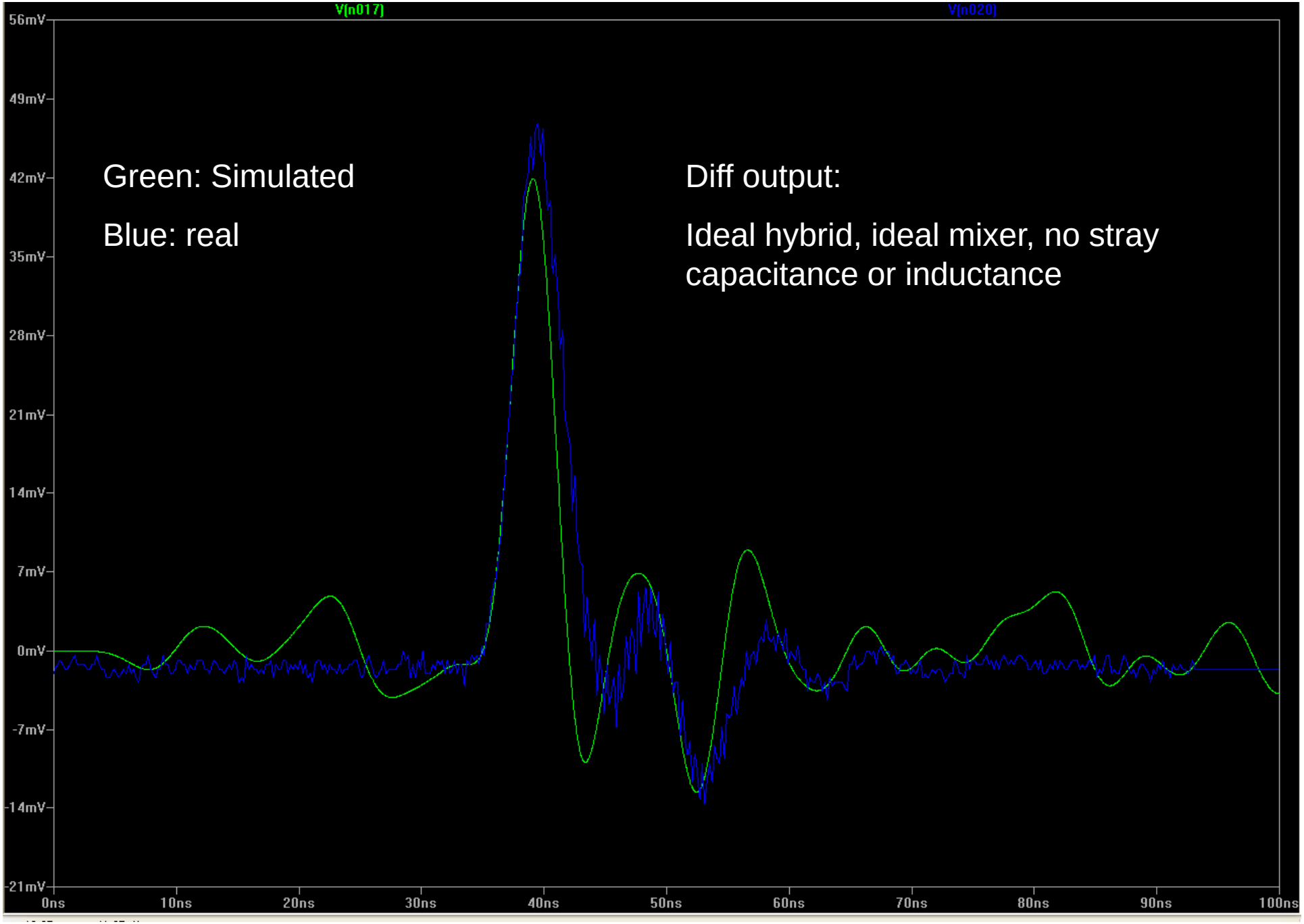
# Definitions

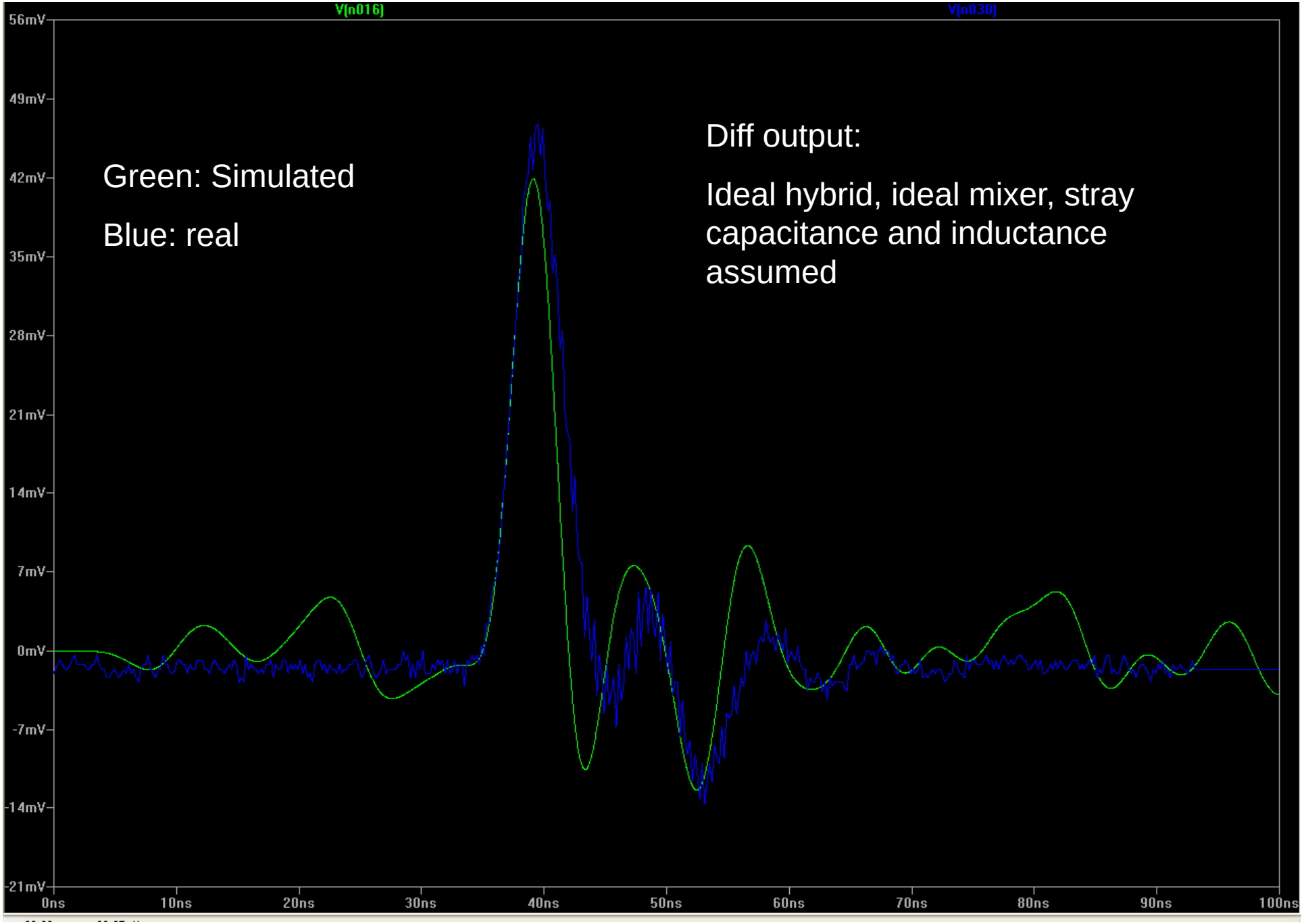
- Realistic hybrid is using a phase shift that varies quadratically with frequency, this is mimicking the performance from the data sheet.
- Realistic mixer is using realistic diodes, not much known about mixer’s real performance.

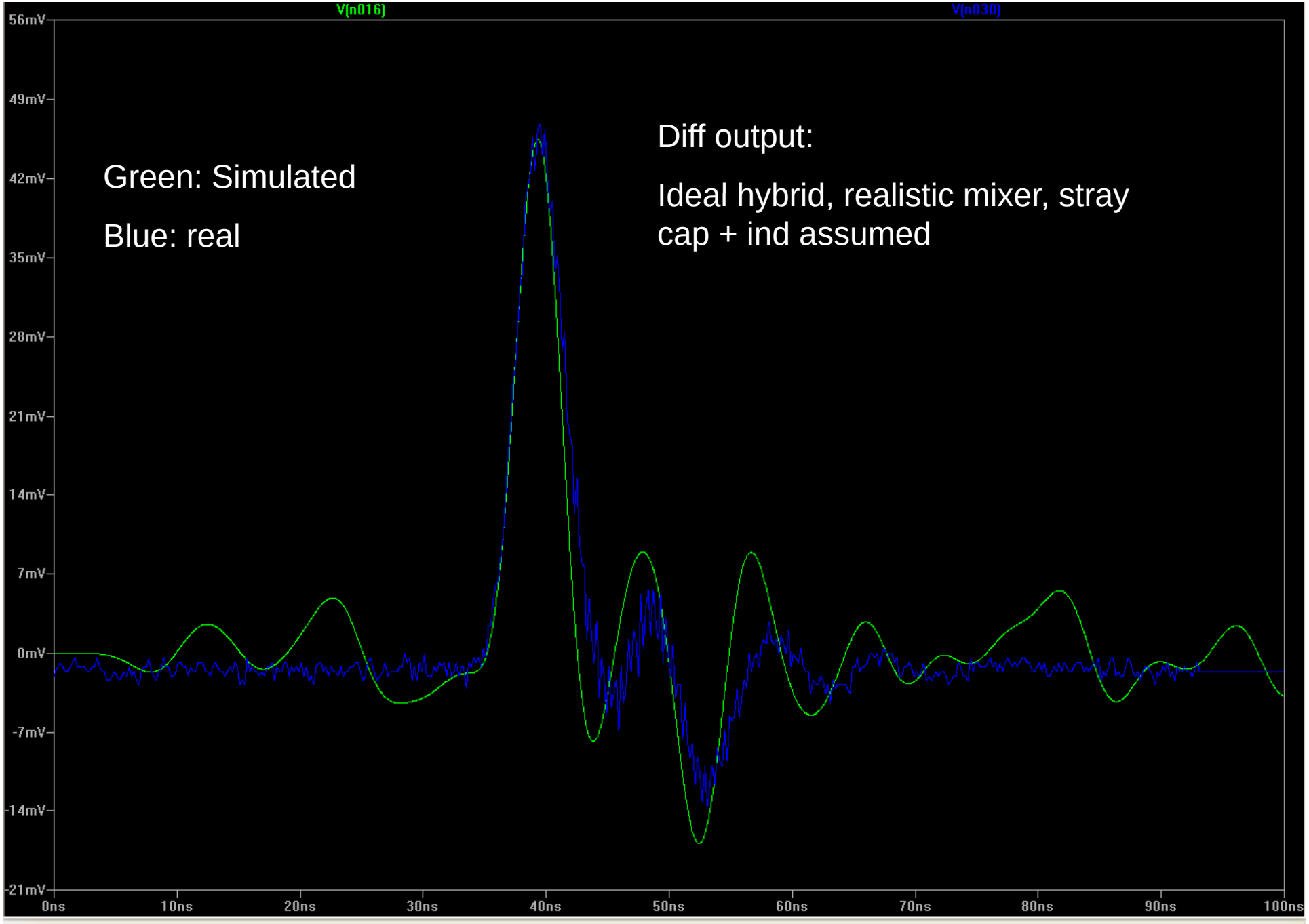
# Set up

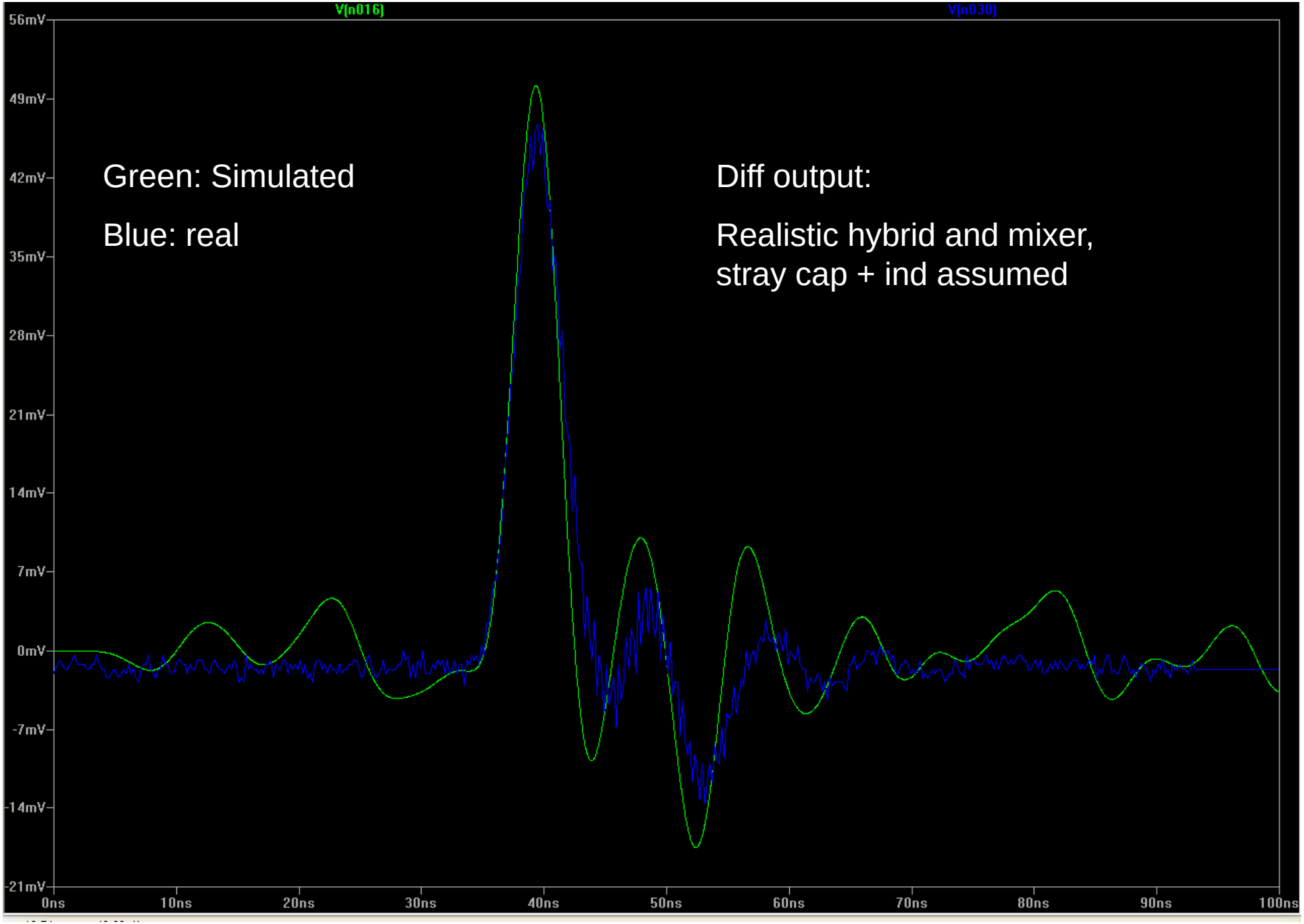
- Using data from 13th May ’08
- Has raw stripline signals and processor outputs, perfect for comparison

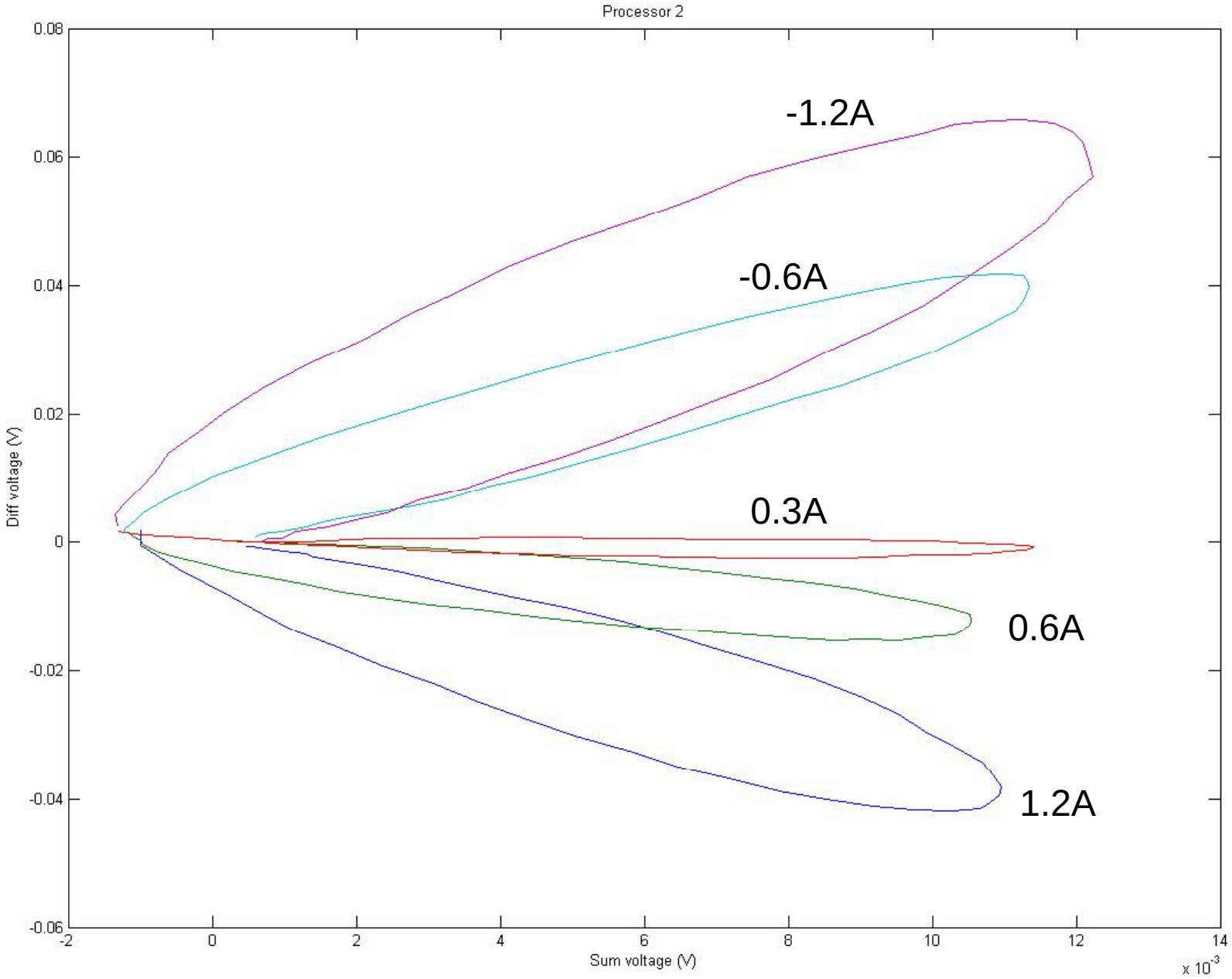

V(n005)
10dB
0dB
-10dB
-20dB
-30dB
-40dB
-50dB
-60dB
-70dB
-80dB
-90dB
-100dB
-110dB
-120dB
-130dB
-140dB
-50°
-100°
-150°
-200°
-250°
-300°
-350°
-400°
-450°
-500°
-550°
-600°
-650°
10MHz
100MHz
1GHz
BPF frequency response:
Stray capacitance: 0.3pF
Stray inductance: 0.6pH
Phase shift
632MHz
Amplitude
x = 64.883MHz y = -34.561dB, -228.246°

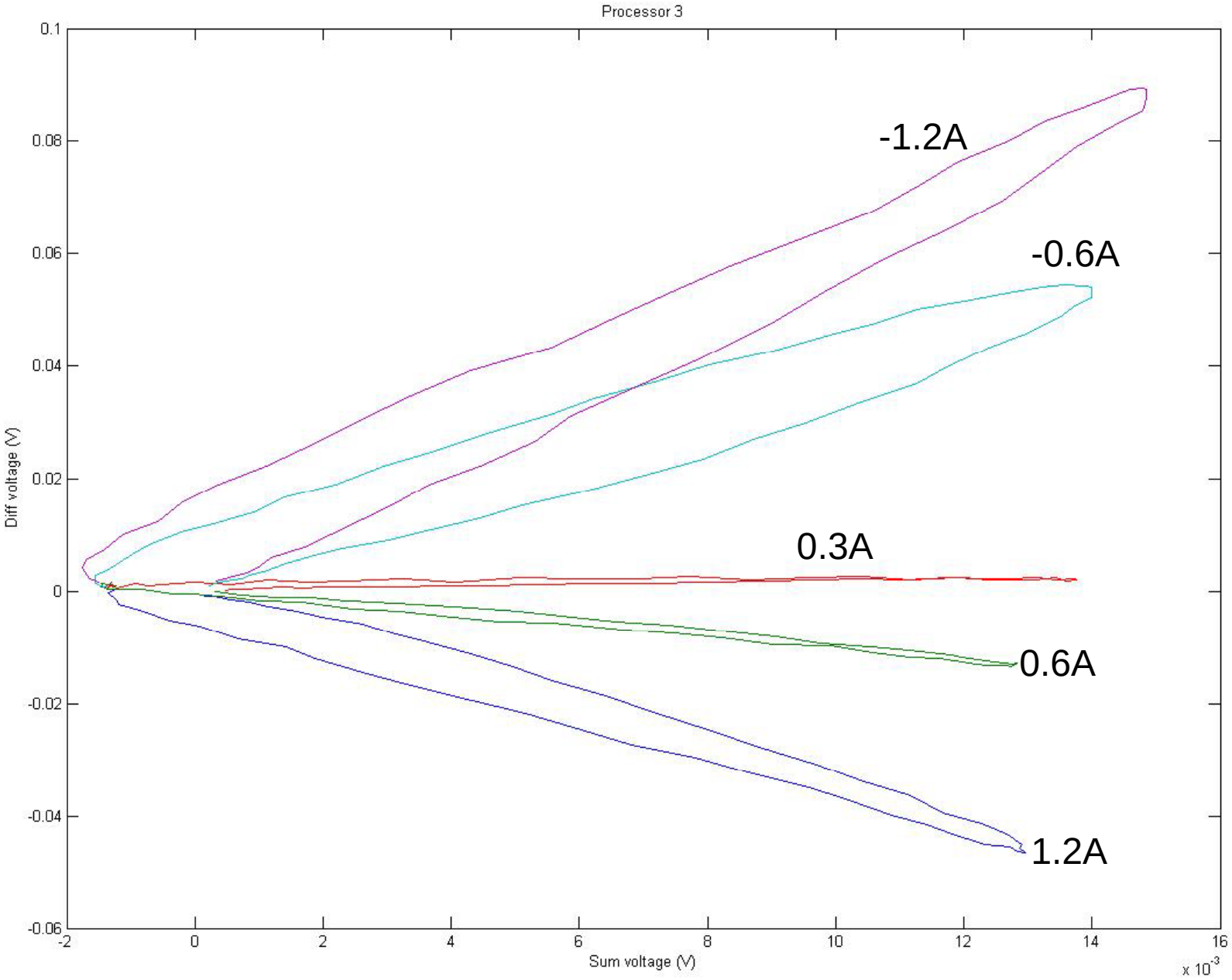

V(n017)
V(n020)
56mV
49mV
42mV
35mV
28mV
21mV
14mV
7mV
0mV
-7mV
-14mV
-21mV
0ns
10ns
20ns
30ns
40ns
50ns
60ns
70ns
80ns
90ns
100ns
Green: Simulated
Blue: real
Diff output:
Ideal hybrid, ideal mixer, no stray capacitance or inductance


V(n016)
V(n030)
56mV
49mV
42mV
35mV
28mV
21mV
14mV
7mV
0mV
-7mV
-14mV
-21mV
0ns
10ns
20ns
30ns
40ns
50ns
60ns
70ns
80ns
90ns
100ns
Green: Simulated
Blue: real
Diff output:
Ideal hybrid, ideal mixer, stray capacitance and inductance assumed


V(n016)
V(n030)
56mV
49mV
42mV
35mV
28mV
21mV
14mV
7mV
0mV
-7mV
-14mV
-21mV
0ns
10ns
20ns
30ns
40ns
50ns
60ns
70ns
80ns
90ns
100ns
Green: Simulated
Blue: real
Diff output:
Ideal hybrid, realistic mixer, stray cap + ind assumed


V(n016)
V(n030)
56mV
49mV
42mV
35mV
28mV
21mV
14mV
7mV
0mV
-7mV
-14mV
-21mV
0ns
10ns
20ns
30ns
40ns
50ns
60ns
70ns
80ns
90ns
100ns
Green: Simulated
Blue: real
Diff output:
Realistic hybrid and mixer,
stray cap + ind assumed


Processor 2
-1.2A
-0.6A
0.3A
0.6A
1.2A
Diff voltage (V)
Sum voltage (V)
x 10^-3
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-2
0
2
4
6
8
10
12
14


Processor 3
Diff voltage (V)
Sum voltage (V)
x 10^-3
-1.2A
-0.6A
0.3A
0.6A
1.2A
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-2
0
2
4
6
8
10
12
14
16