

Please review the following regarding your two PLL's SFX-524-CRNx

SFX-524-CRN1 Exact frequency is 40.0787 MHz in and out. PLL BW is 50 Hz.

System

Min Freq: 40.0MHz
Max Freq: 40.0MHz
Channel Spc: 160.0kHz
PD Freq: 160kHz
Design Freq: 40.0MHz

Reference

custom
Frequency: 40.0MHz
Phase Noise: None

VCO

custom
Kv (ideal):
Input Cap: 0F
Phase Noise: None

Chip

ADF4111
Mode: Normal

Main Divider:
Ref Divider:
Phase Detector: Charge Pump
Lock Detect: Dig. Filter
Speedup Mode: None

Loop Filter

CPP_3C
Specify: Phase Margin
Loop Bandwidth: 50.0 Hz
Phase Margin: 70.0 deg
Zero Loc: 6.27 Hz
Pole Loc: 399 Hz
Last Pole: 500 Hz
C1: 67.7nF
R1: 5.34k
C2: 4.76uF
R2: 406k
C3: 877pF

Lock Detect

Dig. Filter

FreqDomain

Min Freq: 1.00 Hz
Max Freq: 10.0kHz
Pts per Decade: 10
Analysis at: 40.0MHz

TimeDomain

Type: Power On
Frequency: 40.0MHz
Stop Time: 300ms
Max Time Step: 200ns

ADF4111 design for 40M ref 40M out 50Hz Bw 70deg mrgn 160kPFD.pll analysed at 08/26/13 14:35:48

PLL Chip is ADF4111
VCO is custom
Reference is custom

Loop Filter designed at a VCO frequency of 40.0MHz with a Kv of 3.00kHz/V

Frequency Domain Analysis of PLL
Analysis at PLL output frequency of 40MHz

Phase Noise Table

Freq	Total	VCO	Ref	Chip	Filter
100	-112.9	--	--	-118.2	-114.3
1.00k	-142.8	--	--	-154.5	-143.1
10.0k	-182.3	--	--	-213.0	-182.3
100k	-222.3	--	--	-273.0	-222.3
1.00M	-262.3	--	--	-300.0	-262.3

Reference Spurious
Noise and Jitter Calculations include the first 10 ref spurs
First three spurs: -300 dBc -300 dBc -300 dBc

Fractional-N Spur Estimate (worst case)

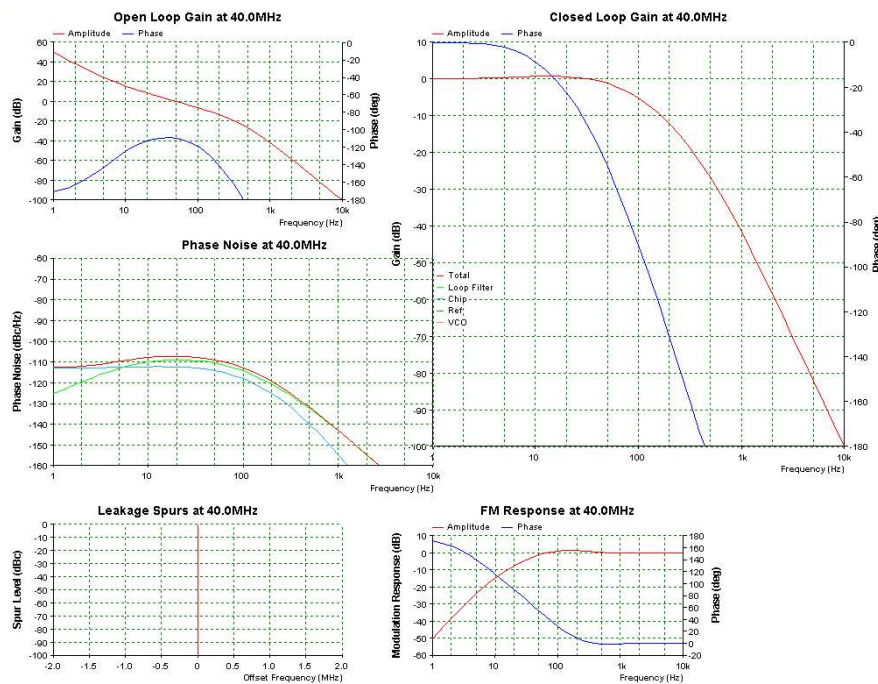
--- End of Frequency Domain Results ---

Transient Analysis of PLL
Power up transient to frequency of 40MHz
Simulation run for 300ms

Frequency Locking
Time to lock to 1.00kHz is 4.01ms
Time to lock to 10.0 Hz is 97.5ms

Phase Locking (VCO Output Phase)
Time to lock to 10.0 deg is 143ms
Time to lock to 1.00 deg is 193ms

Lock Detect Threshold
Time to lock detect exceeds 2.50 V is 75.5ms



SFX-524-CRN2 Exact frequency is 320.6296 MHz in and out. PLL BW is 200 Hz.

System
 Min Freq 320MHz
 Max Freq 320MHz
 Channel Spc 320.0kHz
 PD Freq 320kHz
 Design Freq 320MHz

Reference
 custom
 Frequency 40.0MHz
 Phase Noise None

VCO
 custom
 Tuning Law Kv (ideal)
 Input Cap 0F
 Phase Noise None

Chip
 ADF4111
 Mode Normal

Loop Filter
 Specify: CPP_3C
 Loop Bandwidth 200 Hz
 Phase Margin 67.0 deg
 Zero Loc 30.4 Hz
 Pole Loc 1.32kHz
 Last Pole 2.00kHz
 C1 9.32nF
 R1 10.7k
 C2 488nF
 R2 235k
 C3 418pF

Lock Detect
 Dig Filter

ADF4111 design for 40M ref 320M out 200Hz Bw 67deg mrgn 320KPFd.pll analysed at 08/26/13 14:52:24

PLL Chip is ADF4111
 VCO is custom
 Reference is custom
 Loop Filter designed at a VCO frequency of 320MHz with a Kv of 24.0kHz/V

Frequency Domain Analysis of PLL
 Analysis at PLL output frequency of 320MHz

Phase Noise Table

Freq	Total	VCO	Ref	Chip	Filter
100	-95.54	--	--	-97.18	-105.1
1.00k	-112.7	--	--	-113.6	-119.9
10.0k	-155.0	--	--	-163.7	-155.6
100k	-195.5	--	--	-223.5	-195.5
1.00M	-235.5	--	--	-283.4	-235.5

Reference Spurs
 Noise and Jitter Calculations include the first 10 ref spurs
 First three spurs: -300 dBc -300 dBc -300 dBc

Fractional-N Spur Estimate (worst case)

---- End of Frequency Domain Results ----

Transient Analysis of PLL
 Power up transient to frequency of 320MHz
 Simulation run for 50.0ms

Frequency Locking
 Time to lock to 1.00kHz is 9.75ms
 Time to lock to 10.0 Hz is 29.6ms

Phase Locking (VCO Output Phase)
 Time to lock to 10.0 deg is 31.5ms
 Time to lock to 1.00 deg is 41.5ms

Lock Detect Threshold
 Time to lock detect exceeds 2.50 V is 9.30ms

