

List of Phase Models' Parameters				
Parameter of the phase Model	Value	Parameter of the 4rd Gen Prototype	Value	Comment
$\omega_k$	$60 \cdot 2\pi \cdot 10^9 Hz$	$\omega_k = 2\pi f_k$	$60 \cdot 10^9 Hz$	intrinsic SLL frequency
$K_k^{VCO}$	$2\pi \cdot 1 \cdot 10^9 Hz/V$	$K_{VCO}^{prebias}$	$1 \cdot 10^9 Hz/V$	sensitivity of the VCO at $f_{VCO}^{out}$
$A_k^{bias}$	$2.12V$	$A_k^{prebias}$	$2.12V$	pre-bias voltage of the VCO at $f_{VCO}^{out}$
$\tau^{cc}$	$0...10ns$	$\tau^{cc}$	$0...10ns$	crosscoupling time-delay
$A_k^{PD}$	$1.6V$	$A_k^{PD} = A_k^{PD,max} - A_k^{PD,min} = \overline{V_{A-\bar{A},max} - V_{A-\bar{A},min}}$	$0.8 - (-0.8) = 1.6V$	voltage of the PD
$A_k^{PD,off}$	$0V$	$A_k^{PD,off}$	$0V$	offset voltage of the PD
$G_k^{a,1}$	$0.1...16$	$G_k^{a,1}$	$...$	gain (damping) of the first adder
$G_k^{a,2}$	$1$	$G_k^{a,2}$	$0 dB$	gain of the second adder
$G_k^{LF}$	$1$	$G_k^{LF}$	$0 dB$	loop filter gain
$\omega^c$	$100 (10^6)...800 (10^6) HZ$	$...$	range of cut off frequency	
$v_k$	$4 \text{ and } 8$	$v_k$	$4 \text{ and } 8$	division of the VCO's frequency
$K_k$	$2\pi \cdot 800 \cdot 10^6 G_k^{a,1} Hz/V$	$K_k = K_k^{VCO} G_k^{a,1} G_k^{a,2} A_k^{PD} / 2$	$...$	coupling strength