

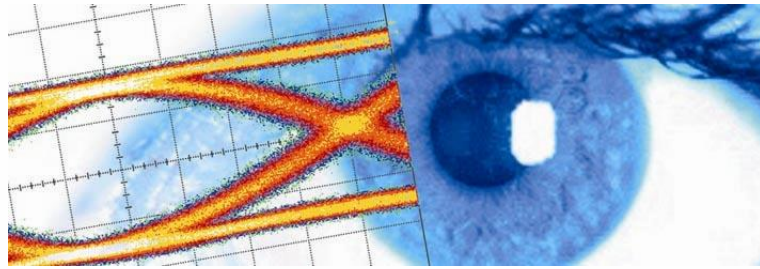


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Datasheet

SHF 78121 A

Clock Distribution





Description

The SHF 78121 A is a versatile broad band clock distribution unit providing copies of the incoming clock at different divider ratios.

Features

- Broad band operation from 3 to 56 GHz
- Multiple clock outputs at different divider ratios
- Optional frequency doubler up to 64 GHz
- Optional frequency divider up to 64 GHz
- Controlled by intuitive graphical user interface BERT Control Center (BCC)

Options

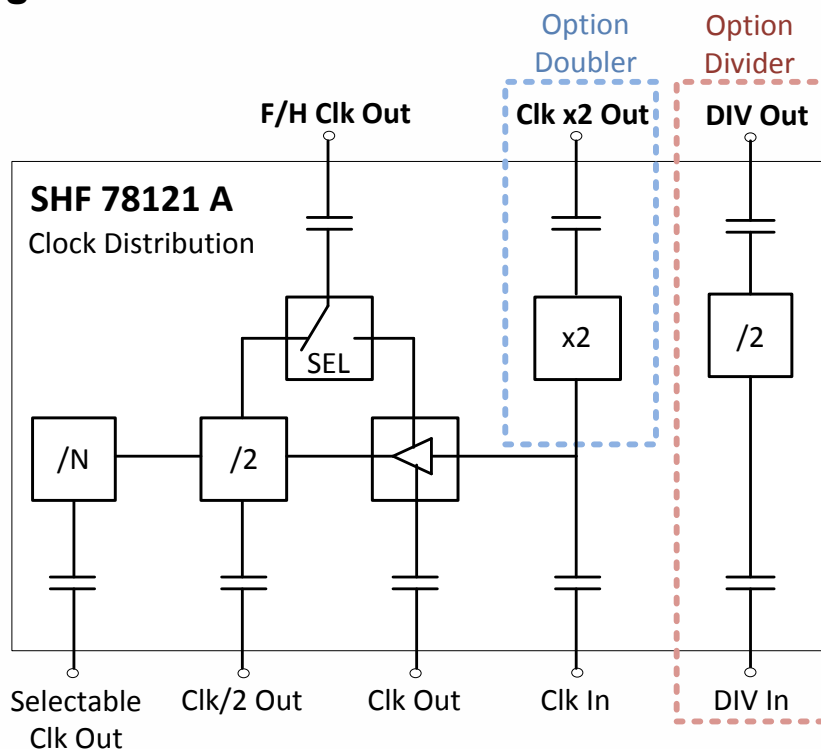
Option Doubler

The optional frequency doubler provides a high speed clock signal of 50 GHz to 64 GHz from a 25 GHz to 32 GHz clock signal

Option Divider

The optional frequency divider provides a high speed clock signal of 12.5 GHz to 32 GHz from a 25 GHz to 64 GHz clock signal

Block Diagram





Specifications – SHF 78121 A

Parameter	Symbol	Unit	Min.	Typ.	Max.	Comment
Clock Distribution						
Connector Type						
Clock In						ruggedized 1.85 mm (V) male connector
Clock Out						ruggedized 1.85 mm (V) male connector
Clock/2 Out		Ω		50		ruggedized 2.92 mm (K) male connector
F/H Clock Out						ruggedized 2.92 mm (K) male connector
Selectable Clock Out						ruggedized 2.92 mm (K) male connector
Minimum Input Frequency	f_{in_clock}	GHz			3	
Maximum Input Frequency	f_{in_clock}	GHz	56			
Output Frequency						
Clock Out		GHz	1		56	same as input frequency
Clock/2 Out		GHz	0.5		28	half of input frequency
F/H Clock Out (Full Mode)	f_{out_clock}	GHz	0.5		33	full of input frequency
F/H Clock Out (Half Mode)		GHz	0.5		28	half of input frequency
Selectable Clock Out		GHz	0.001		14 28	input frequency / N (N= 4, 8, 16, 32, 64, 128, 256, 512, 1024)
Input Voltage	V_{in_clock}	mV _{pp}	600		1000	AC coupled
Output Voltage						
Clock Out			500	700	1000	AC coupled, @ P _{in} =0 dBm
Clock/2 Out			500	800	1000	AC coupled
F/H Clock Out (Full Mode)	V_{out_clock}	mV _{pp}	300	500	800	AC coupled
F/H Clock Out (Half Mode)			300	500	800	AC coupled
Selectable Clock Out			400	600	800	AC coupled



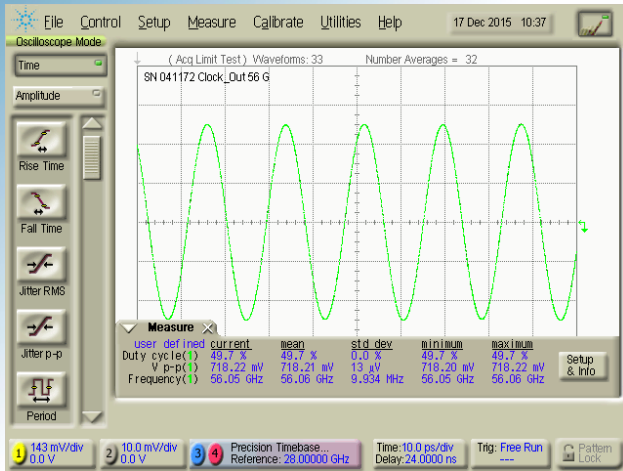
Parameter	Symbol	Unit	Min.	Typ.	Max.	Comment
Option Frequency Doubler						
Connector Type Clock x2 Out		Ω		50		ruggedized 1.85 mm (V) male connector
Minimum Input Frequency	f_{indbl_min}	GHz			25	
Maximum Input Frequency	f_{indbl_max}	GHz	32			
Minimum Output Frequency	f_{outdbl_min}	GHz			50	
Maximum Output Frequency	f_{outdbl_max}	GHz	64			
Output Amplitude	V_{out_dbl}	mV _{pp}	400	800	1300	AC coupled

Parameter	Symbol	Unit	Min.	Typ.	Max.	Comment
Option Frequency Divider						
Connector Type DIV In		Ω		50		ruggedized 1.85 mm (V) male connector
DIV Out						ruggedized 2.92 mm (K) male connector
Minimum Input Frequency	f_{indiv_min}	GHz			27	
Maximum Input Frequency	f_{indiv_max}	GHz	64			
Minimum Output Frequency	f_{outdiv_min}	GHz			13.5	
Maximum Output Frequency	f_{outdiv_max}	GHz	32			
Input Amplitude	V_{in_div}	mV _{pp}	400		800	AC coupled
Output Amplitude	V_{out_div}	mV _{pp}	400	600	800	AC coupled

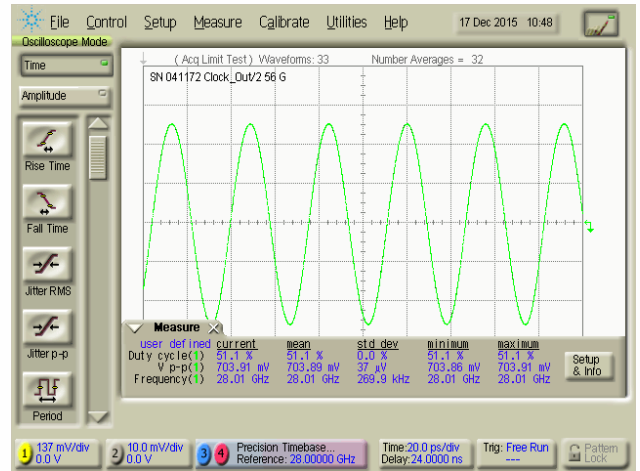
Parameter	Symbol	Unit	Min.	Typ.	Max.	Comment
General						
Power Supply Voltage		V	100		240	
Power Consumption		W		19.5		Incl. Option Doubler & Option Divider
Weight		Kg		3.5		
Dimensions		mm				235 x 110 x 355
Operating Temperature		°C	10		35	Ambient temperature
Storage Temperature		°C	-20		70	
Network Connection		Mbps		10/100		Ethernet, RJ-45



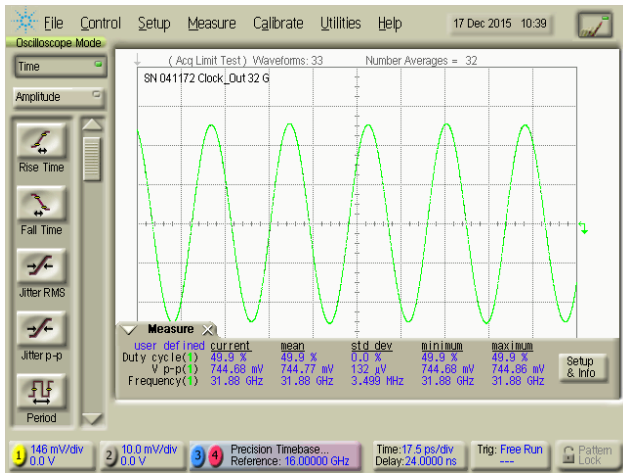
Typical Output Waveforms – Clock Distribution



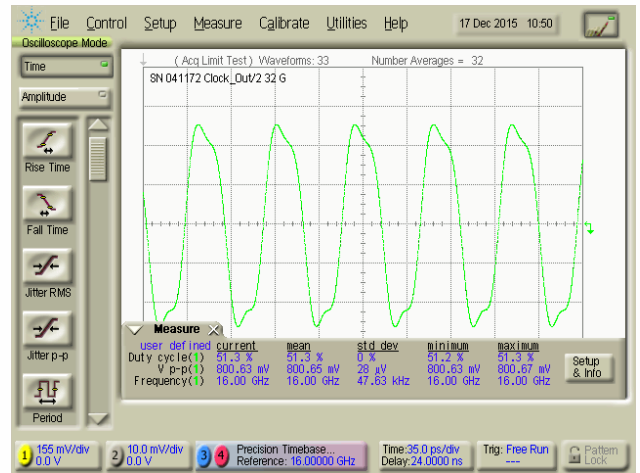
Clock Out → 56 GHz @ f_{in} = 56 GHz



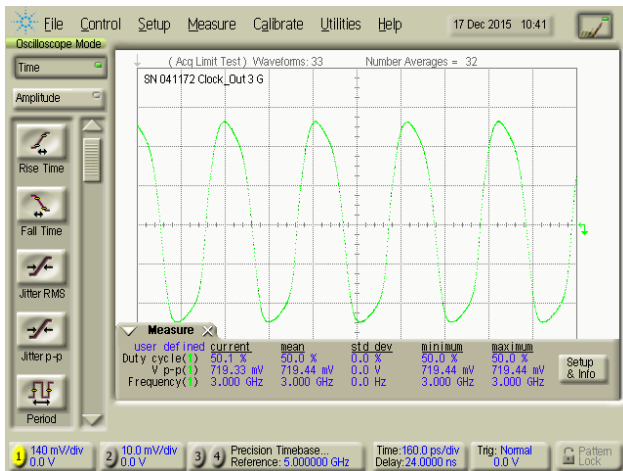
Clock/2 Out → 28 GHz @ f_{in} = 56 GHz



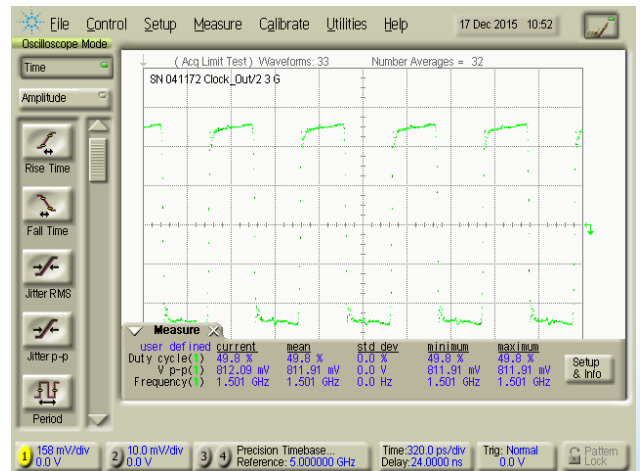
Clock Out → 32 GHz @ f_{in} = 32 GHz



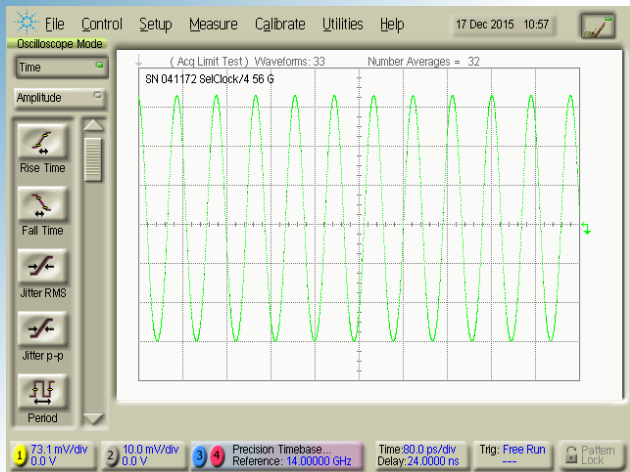
Clock/2 Out → 16 GHz @ f_{in} = 32 GHz



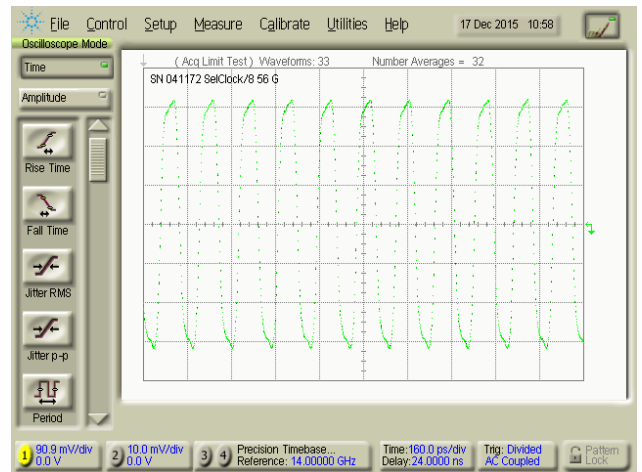
Clock Out → 3 GHz @ f_{in} = 3 GHz



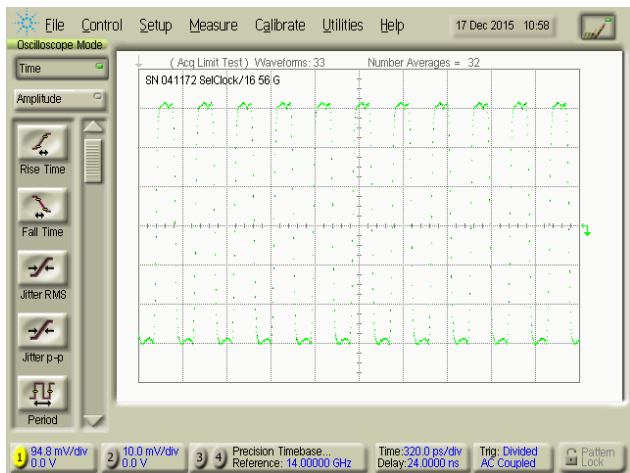
Clock/2 Out → 1.5 GHz @ f_{in} = 3 GHz



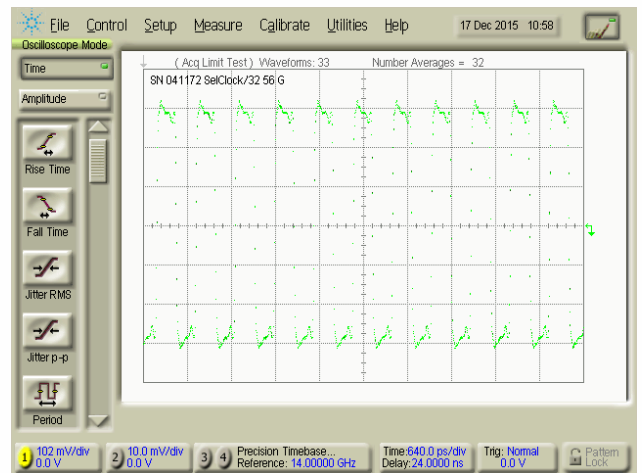
Selectable Clock /4 Out → 14 GHz @ f_{in} = 56 GHz



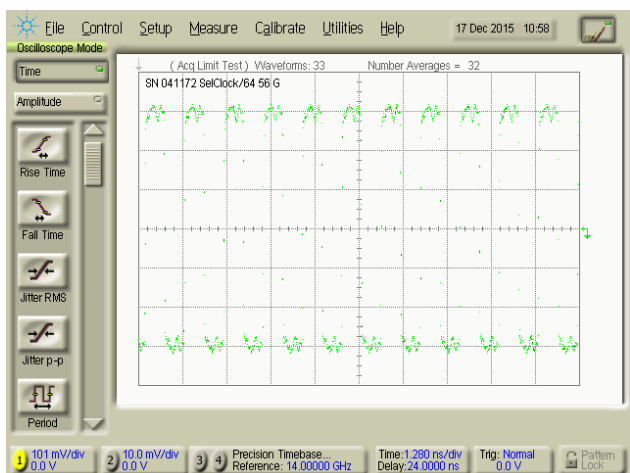
Selectable Clock /8 Out → 7 GHz @ f_{in} = 56 GHz



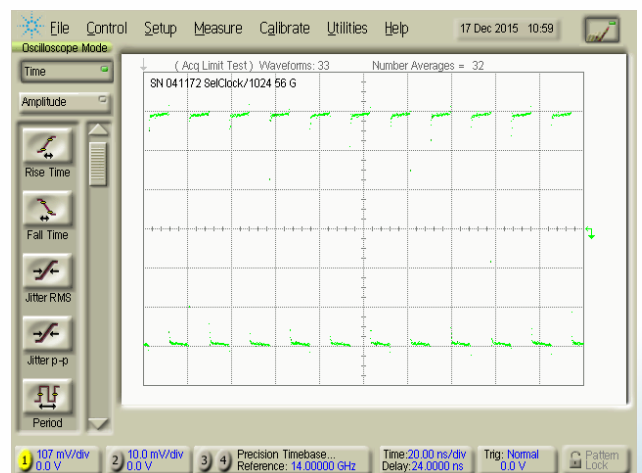
Selectable Clock /16 Out → 3.5 GHz @ f_{in} = 56 GHz



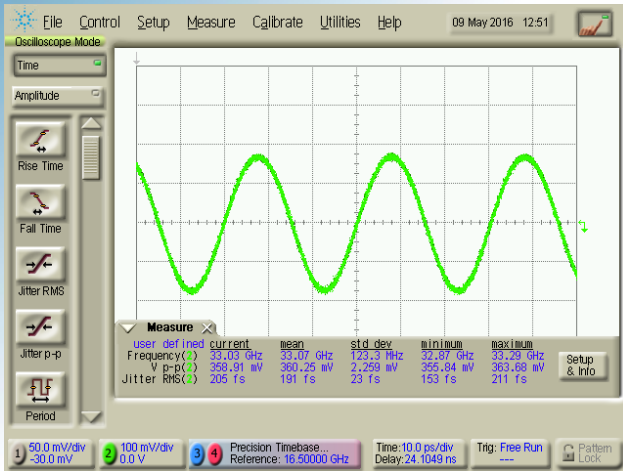
Selectable Clock /32 Out → 1.8 GHz @ f_{in} = 56 GHz



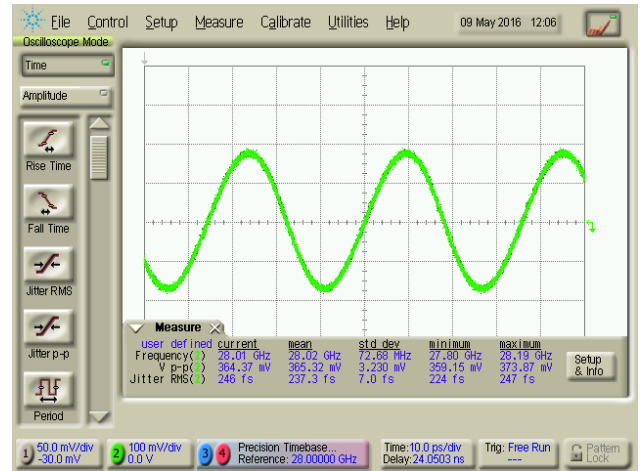
Selectable Clock /64 Out → 0.9 GHz @ f_{in} = 56 GHz



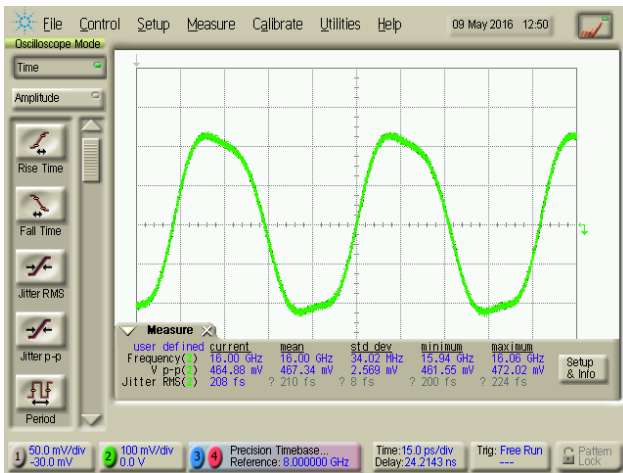
Selectable Clock /1024 Out → 55 MHz @ f_{in} = 56 GHz



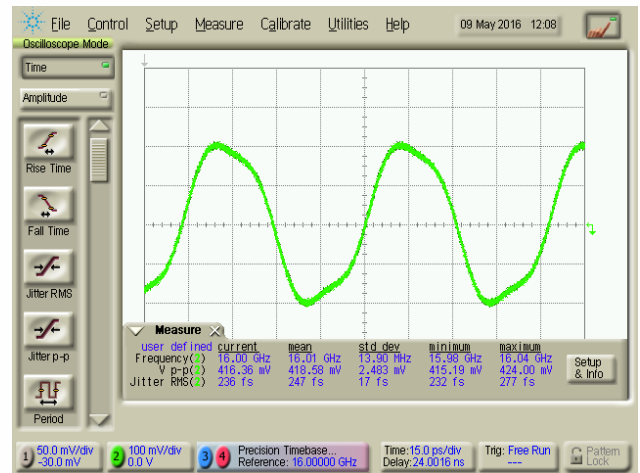
F/H Clk Out (Full Mode) → 33 GHz @ f_{in} = 33 GHz



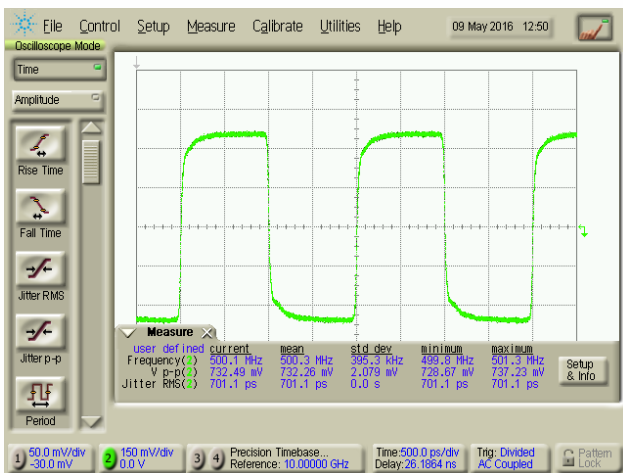
F/H Clk Out (Half Mode) → 28 GHz @ f_{in} = 56 GHz



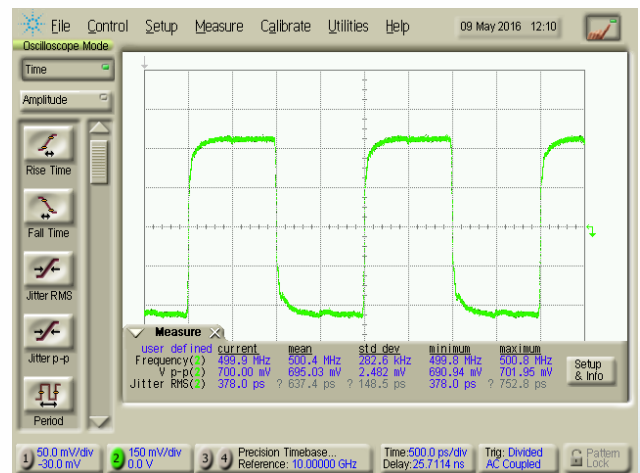
F/H Clk Out (Full Mode) → 16 GHz @ f_{in} = 16 GHz



F/H Clk Out (Half Mode) → 16 GHz @ f_{in} = 32 GHz



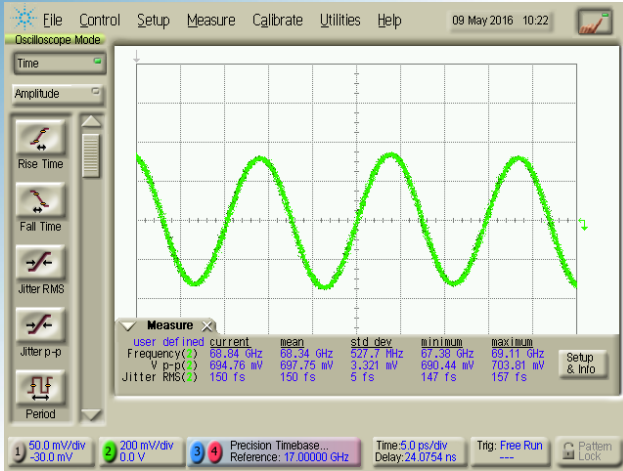
F/H Clk Out (Full Mode) → 0.5 GHz @ f_{in} = 0.5 GHz



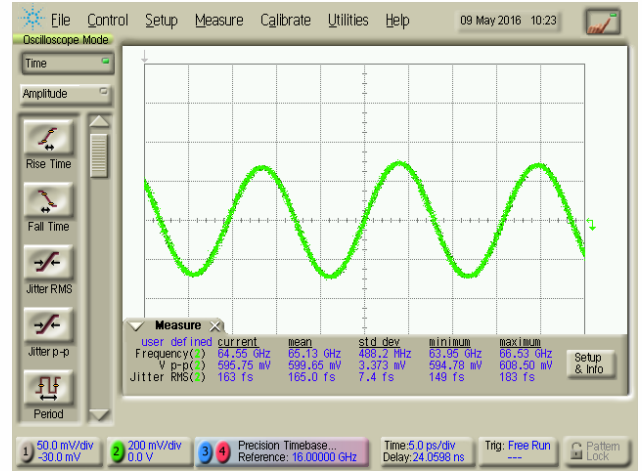
F/H Clk Out (Half Mode) → 0.5 GHz @ f_{in} = 1 GHz



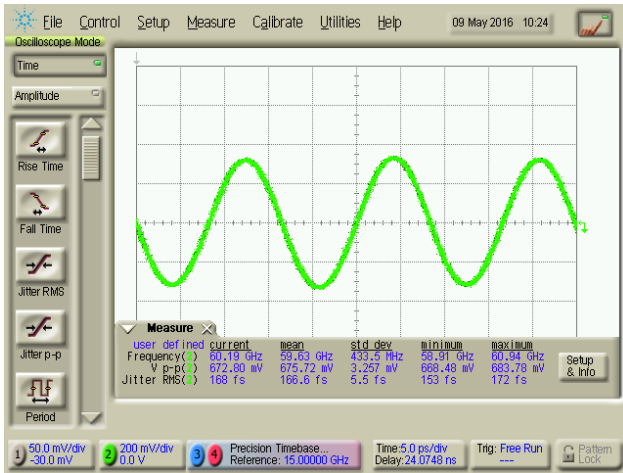
Typical Output Waveforms – Option Doubler



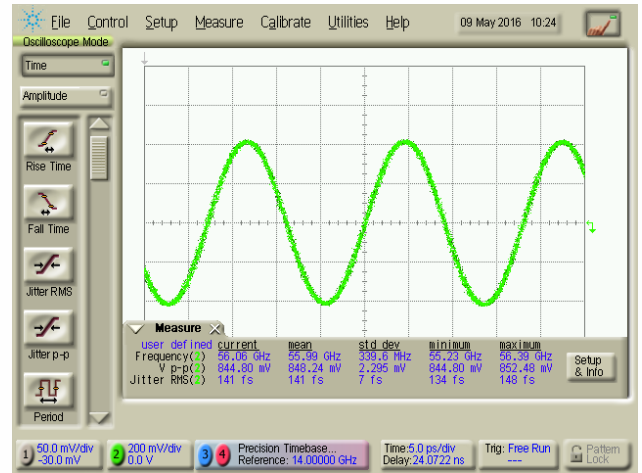
Clock x2 Out → 68 GHz @ fin= 34 GHz



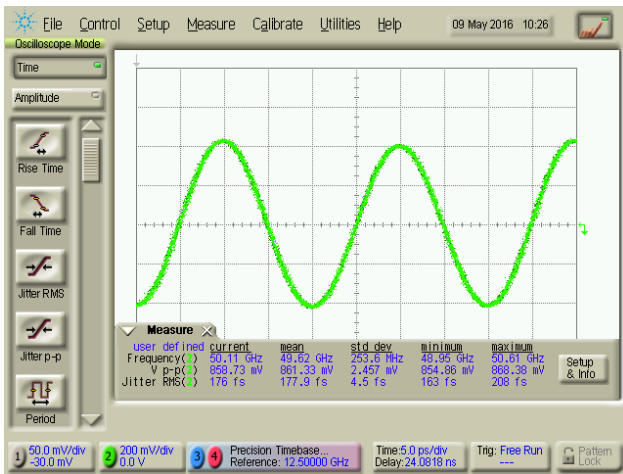
Clock x2 Out → 64 GHz @ fin= 32 GHz



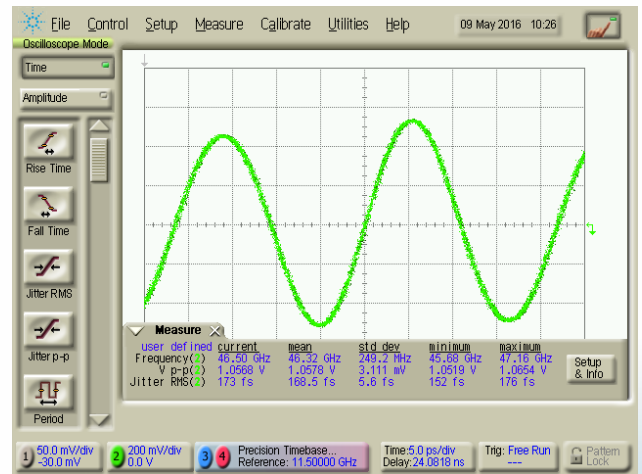
Clock x2 Out → 60 GHz @ fin= 30 GHz



Clock x2 Out → 56 GHz @ fin= 28 GHz



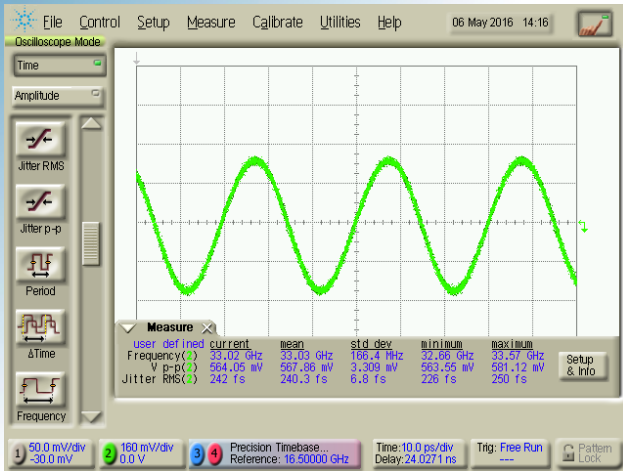
Clock x2 Out → 50 GHz @ fin= 25 GHz



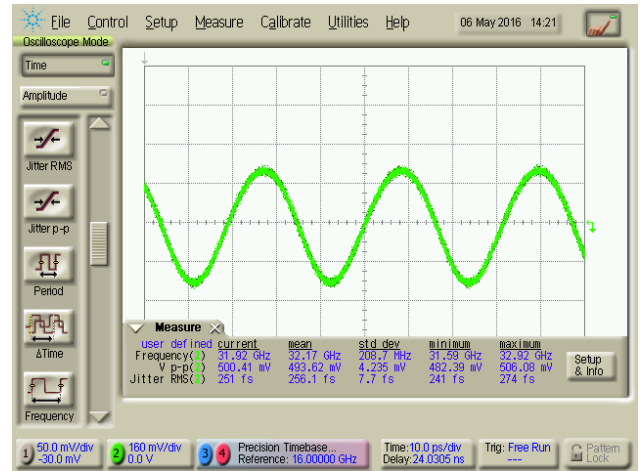
Clock x2 Out → 46 GHz @ fin= 23 GHz



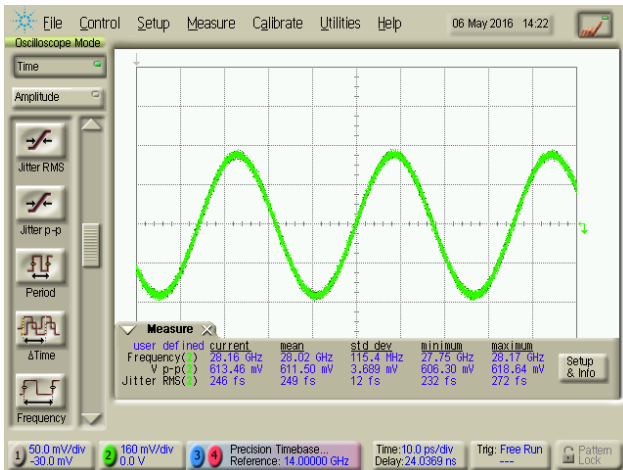
Typical Output Waveforms – Option Divider



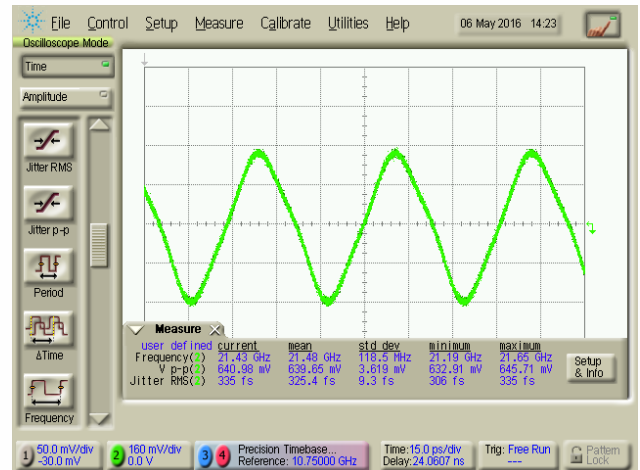
DIV Out → 33 GHz @ f_{in} = 66 GHz



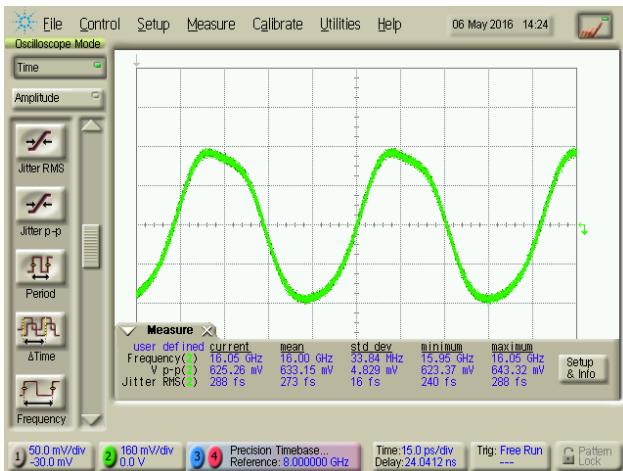
DIV Out → 32 GHz @ f_{in} = 64 GHz



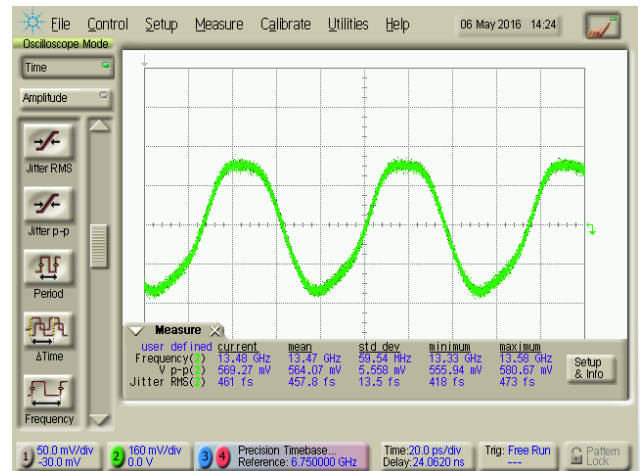
DIV Out → 28 GHz @ f_{in} = 56 GHz



DIV Out → 21.5 GHz @ f_{in} = 43 GHz



DIV Out → 16 GHz @ f_{in} = 32 GHz



DIV Out → 13.5 GHz @ f_{in} = 27 GHz