

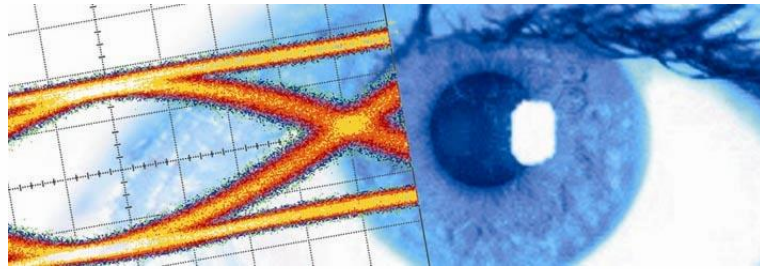


## SHF Communication Technologies AG

Wilhelm-von-Siemens-Str. 23D • 12277 Berlin • Germany

Phone +49 30 772051-0 • Fax ++49 30 7531078

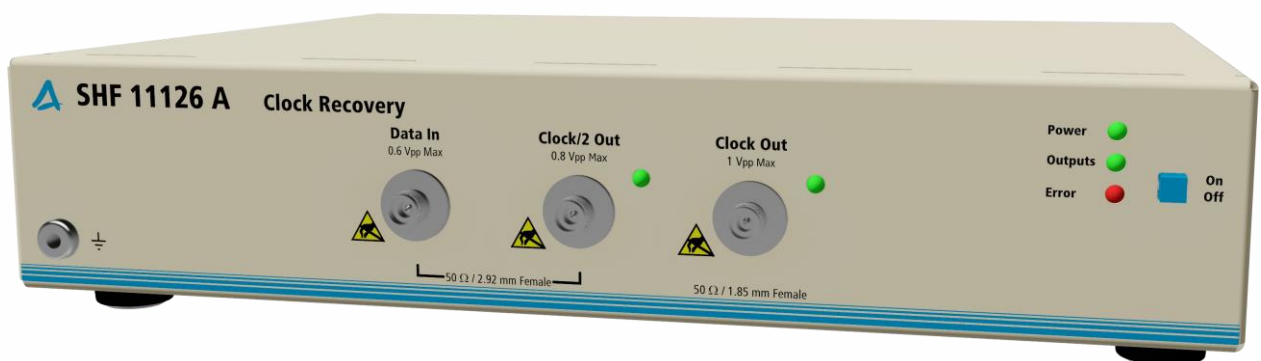
E-Mail: [sales@shf.de](mailto:sales@shf.de) • Web: <http://www.shf.de>



# Datasheet

## SHF 11126 A

### 51 to 65 Gbps Clock Recovery



For illustration only, actual product may vary



## Description

The SHF 11126 A clock recovery is designed to extract the clock from a serial NRZ input data stream. It covers a wide range of input data rates from 51 Gbps to 65 Gbps. The required internal reference clock is provided by an integrated synthesizer module.

The instrument is controlled remotely by Ethernet connection from a PC running the SHF BERT Control Center software (BCC) or the SHF Control Center (SCC). Its programming features allow automated measurements.

The compact size of the clock recovery allows placement very close to the DUT in the test setup.

## Features

- Operating data rate range from 51 to 65 Gbps
- Operates also at sub-rates of 51 to 65 Gbps but extracted clock refers to full data rate
- Clock output frequency at half and optionally full rate of the data rate set in the GUI
- Remote operation via Ethernet connection from a host PC (SHF BERT Control Center)
- Compact size: 221.4 mm (W) x 50.8 mm (H) x 177 mm (D)

## Applications

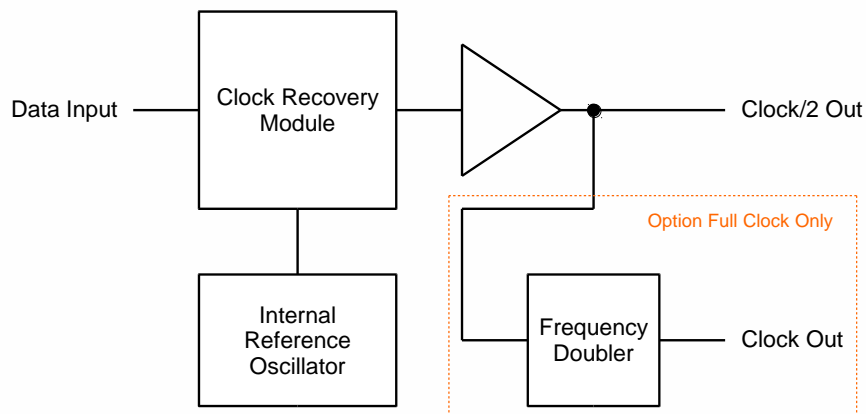
- R&D for characterization of chips, devices, transceiver modules and sub-components
- Characterization of high speed optical and electrical links
- Research, development, production tests, on-wafer testing
- OIF CEI - 56G, InfiniBand®
- Proprietary interfaces (chip-to-chip, chip-to-module, backplanes, repeaters, and active optical cables)

## Options

### Option FC – Full Clock Out

Adds a frequency doubler providing a clock at the frequency of the nominal input data rate.

## Block Diagram



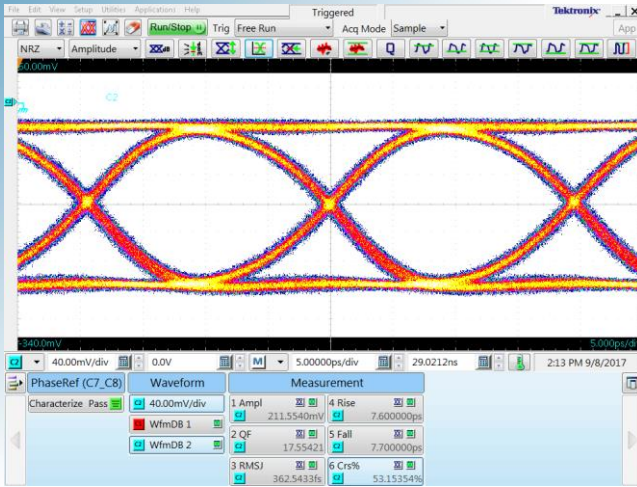


## Specifications – SHF 11126 A

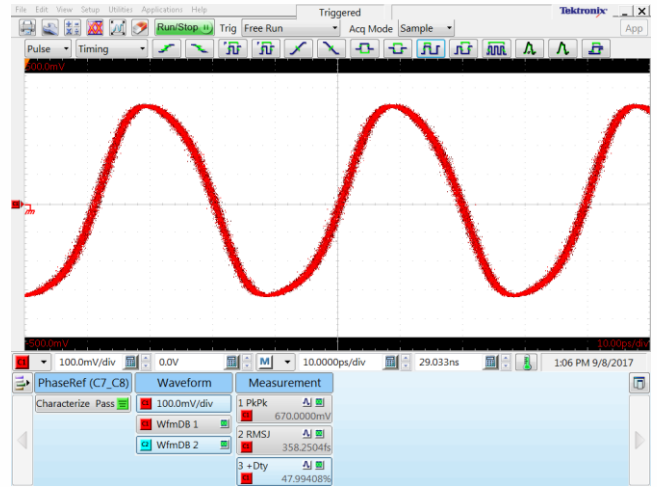
Parameter	Unit	Symbol	Min.	Typ.	Max.	Comment
<b>Data Input</b>						
Input Bit Rate	Gbps		51		65	NRZ data format
Input Level	mV	$V_{\text{eyeamp}}$	200		600	
Connector Type		$\Omega$		50		2.92 mm (K) female
<b>Clock/2 Output</b>						
Output Frequency	GHz	$f_{\text{out,clock}}$	25.5		32.5	
Output Level	mVpp	$V_{\text{out,clock}}$	550		750	
Output Jitter (RMS)	fs	$J_{\text{RMS}}$		300	450	with low jitter reference input signal
Connector Type		$\Omega$		50		2.92 mm (K) female
<b>Full Clock Output (Optional)</b>						
Output Frequency	GHz	$f_{\text{out,clock}}$	51		65	
Output Level	mVpp	$V_{\text{out,clock}}$	500		1000	
Output Jitter (RMS)	fs	$J_{\text{RMS}}$			450	with low jitter reference input signal
Connector Type		$\Omega$		50		1.85 mm (V) female
<b>General</b>						
Supply Voltage	Vee	V	11.5	12	12.5	+12V switching power supply is included
Power Consumption	Ptot	W		7.2	8	
Height	H	mm		50.8		
Width	W	mm		221.4		
Depth	D	mm		177		
Weight	m	g			1500	
Case Temperature	Tcase	°C	15		35	



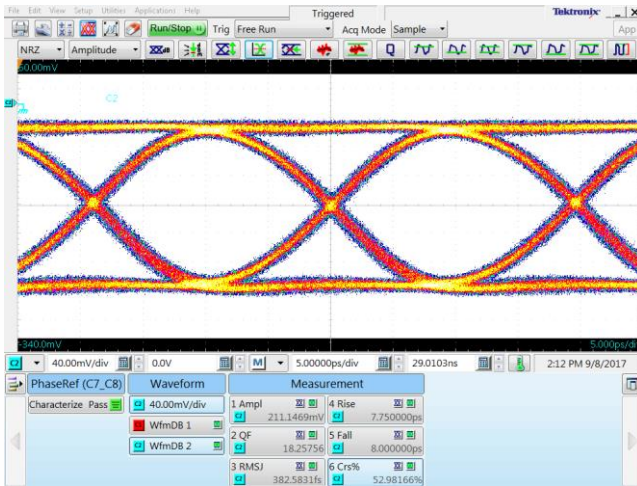
# Typical Output Waveforms



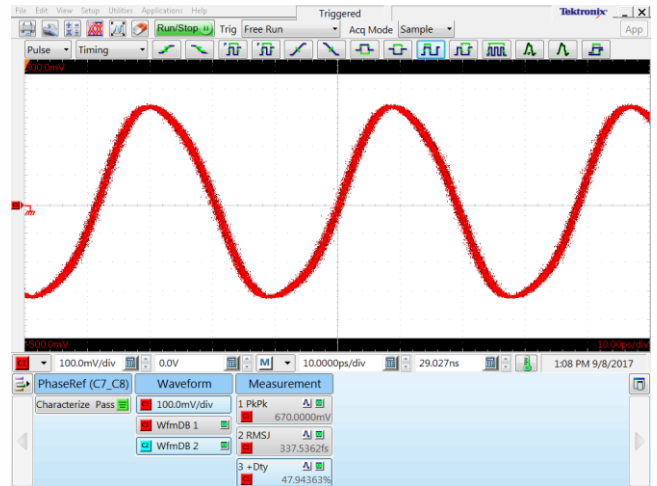
Data In @ 51 Gbps



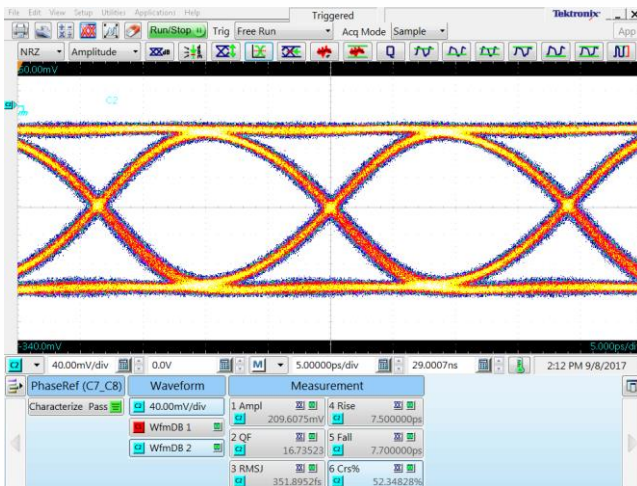
Clock/ Out @ 51 Gbps → 25.5 GHz



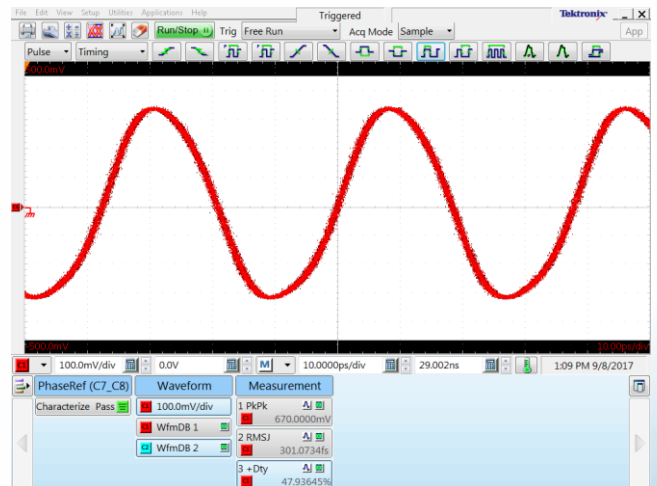
Data In @ 52 Gbps



Clock/ Out @ 52 Gbps → 26 GHz

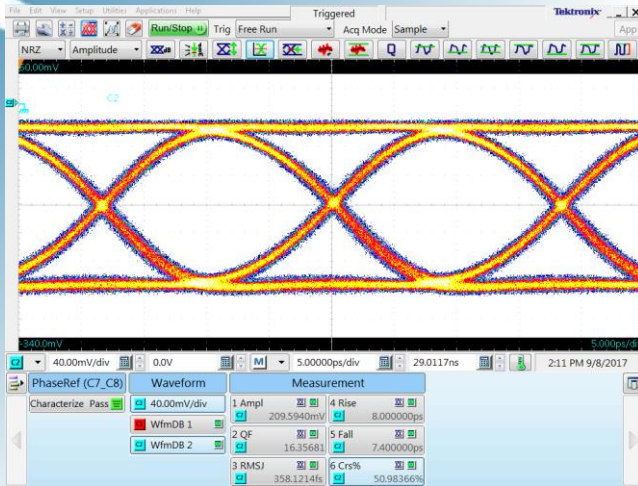


Data In @ 53 Gbps

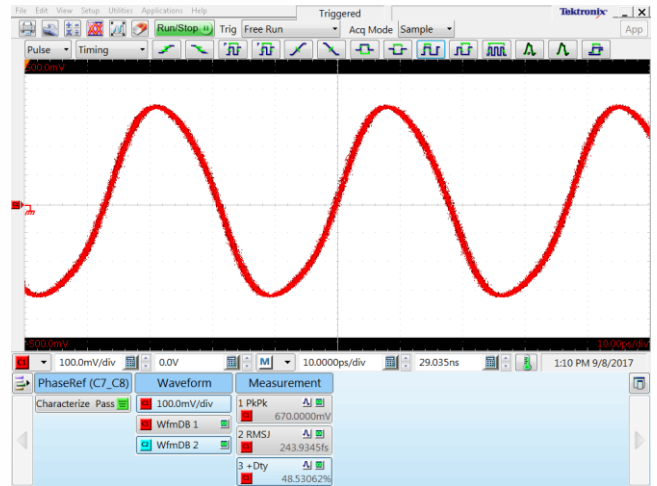


Clock/ Out @ 53 Gbps → 26.5 GHz

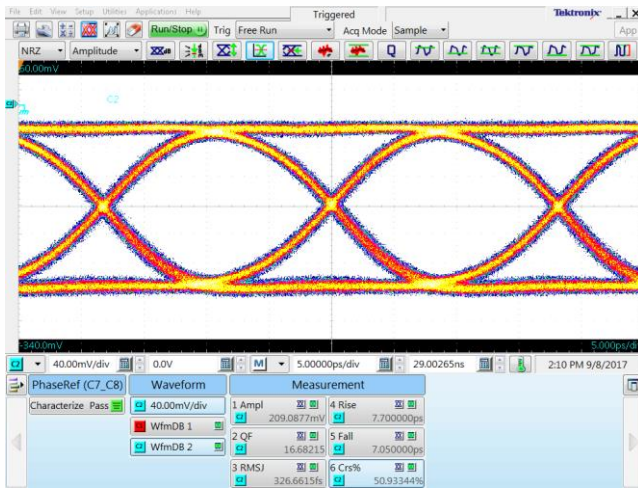




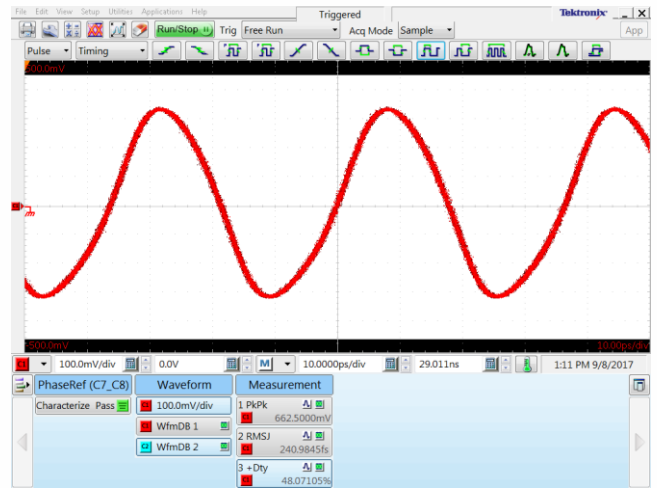
Data In @ 54 Gbps



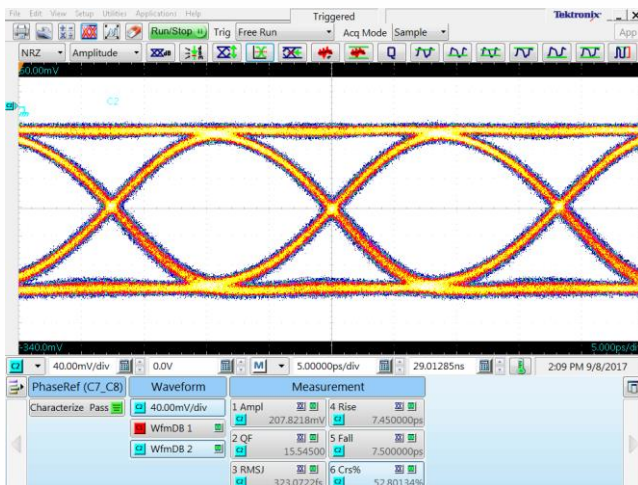
Clock/ Out @ 54 Gbps → 27 GHz



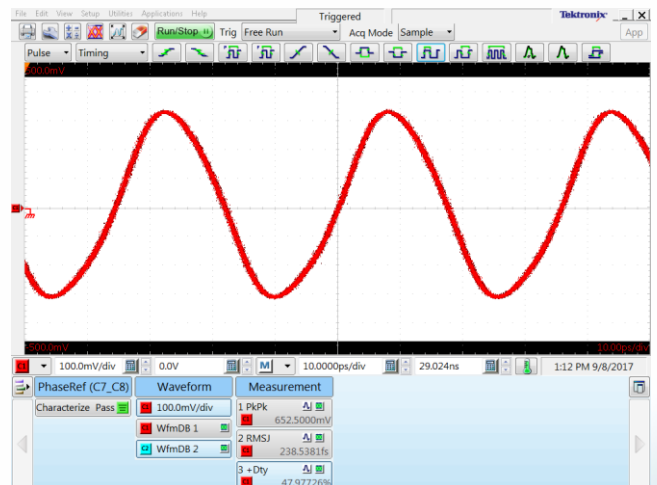
Data In @ 55 Gbps



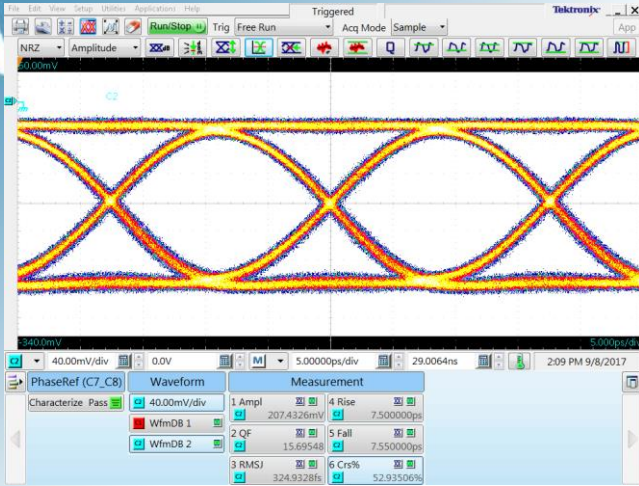
Clock/ Out @ 55 Gbps → 27.5 GHz



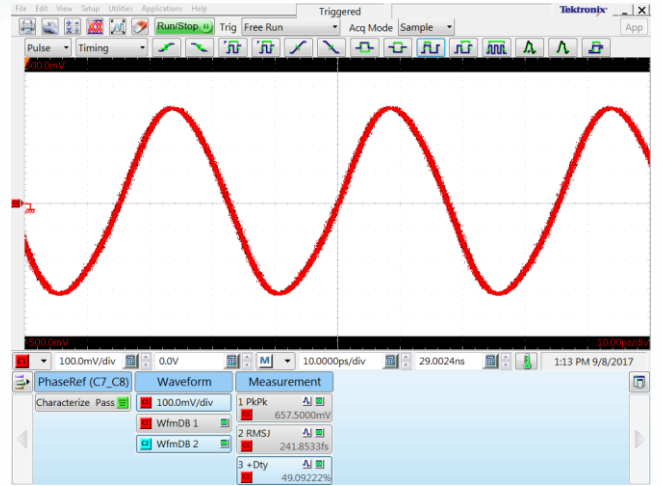
Data In @ 56 Gbps



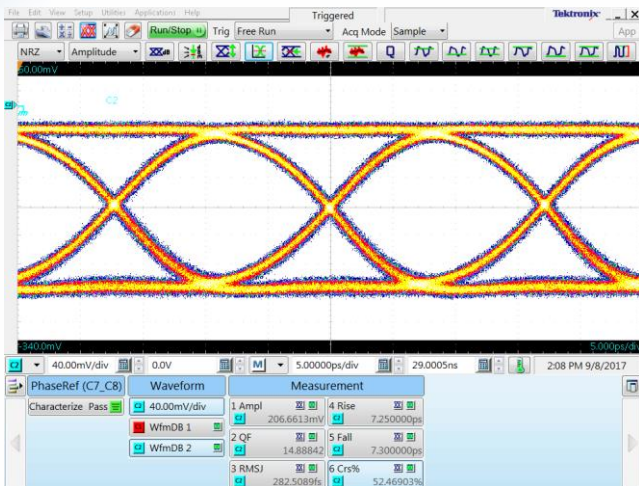
Clock/ Out @ 56 Gbps → 28 GHz



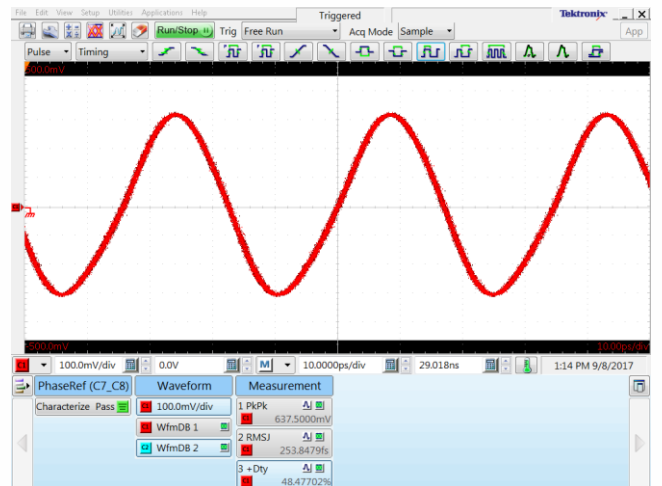
Data In @ 57 Gbps



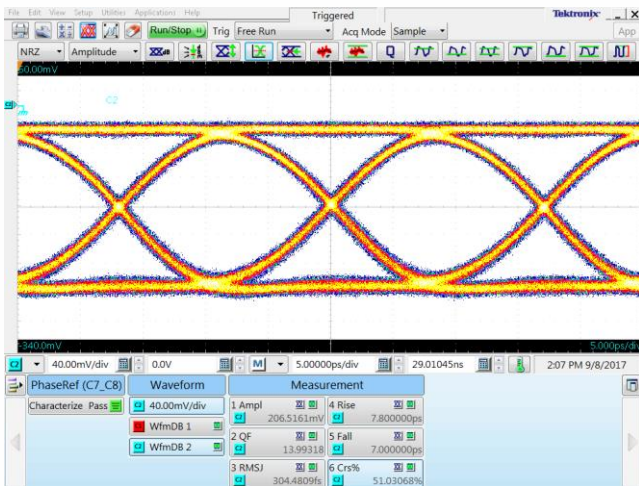
Clock/ Out @ 57 Gbps → 28.5 GHz



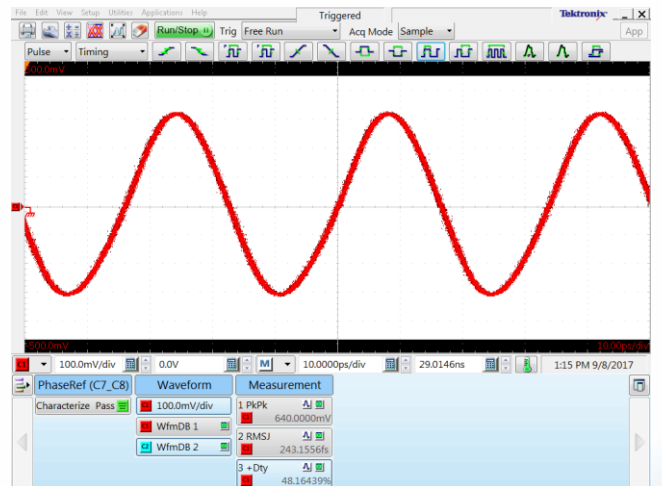
Data In @ 58 Gbps



Clock/ Out @ 58 Gbps → 29 GHz

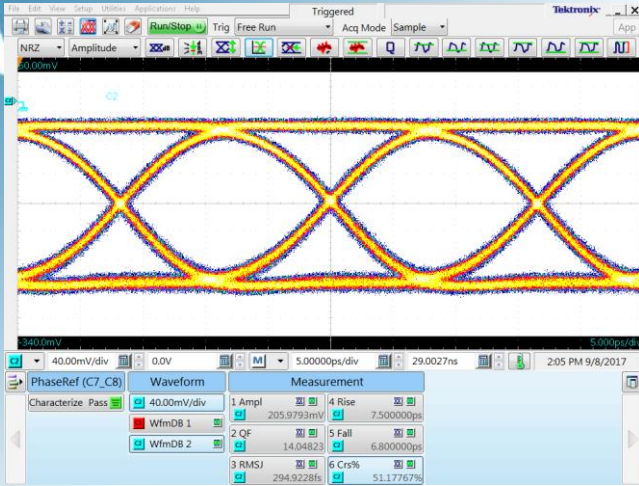


Data In @ 59 Gbps

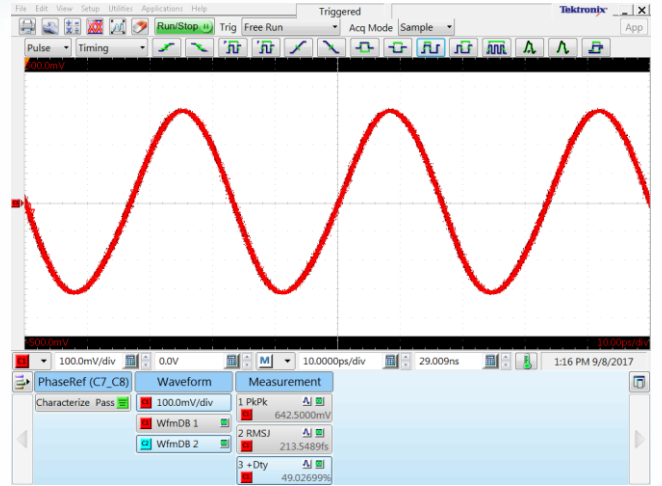


Clock/ Out @ 59 Gbps → 29.5 GHz

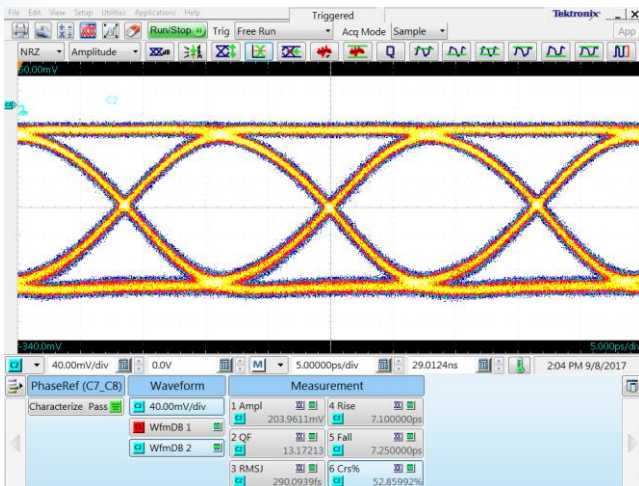




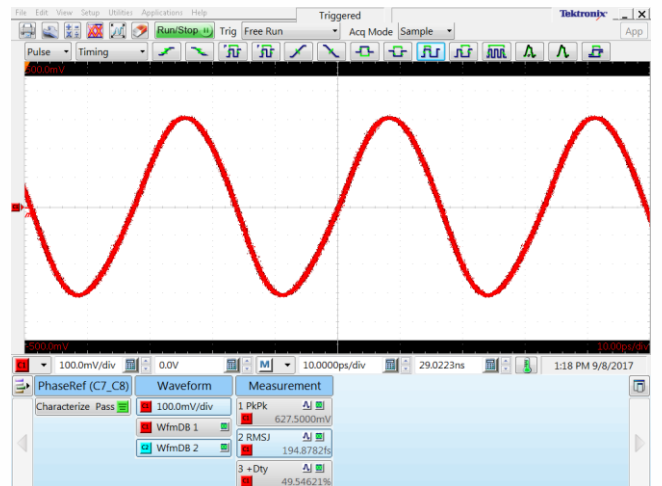
Data In @ 60 Gbps



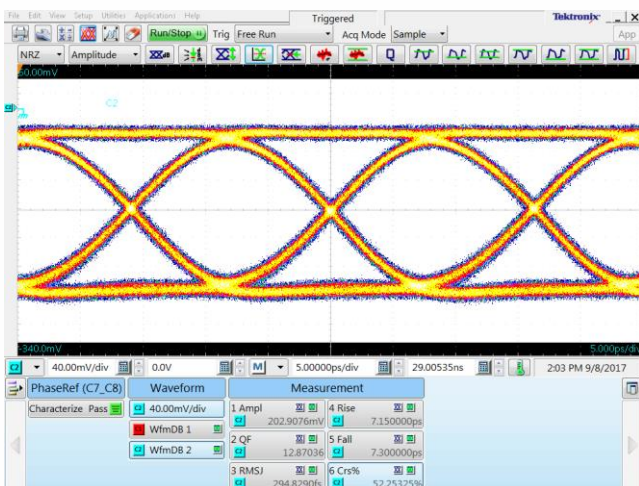
Clock/ Out @ 60 Gbps → 30 GHz



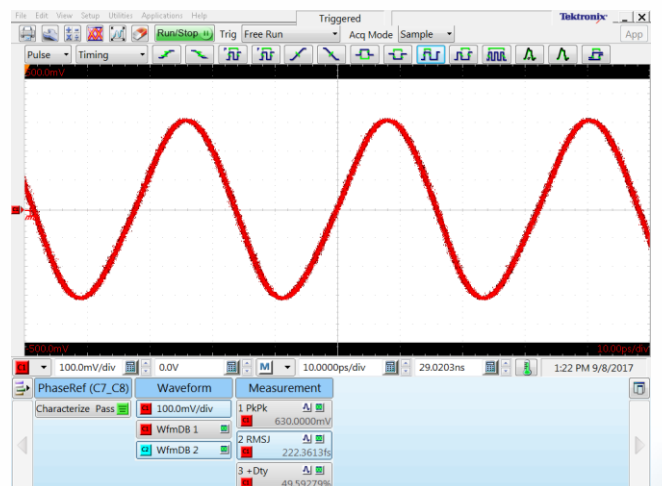
Data In @ 61 Gbps



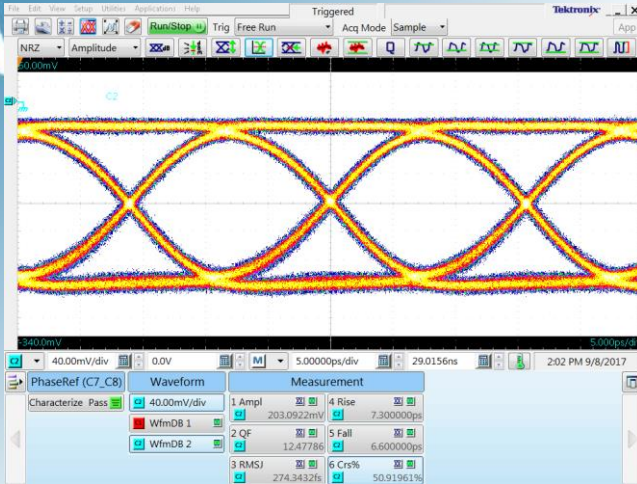
Clock/ Out @ 61 Gbps → 30.5 GHz



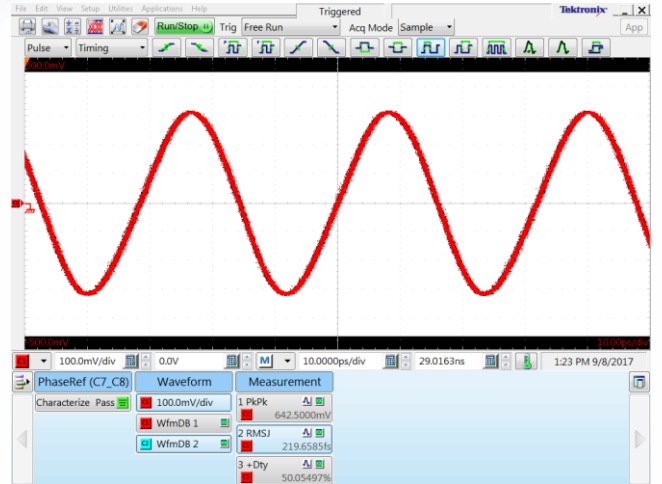
Data In @ 62 Gbps



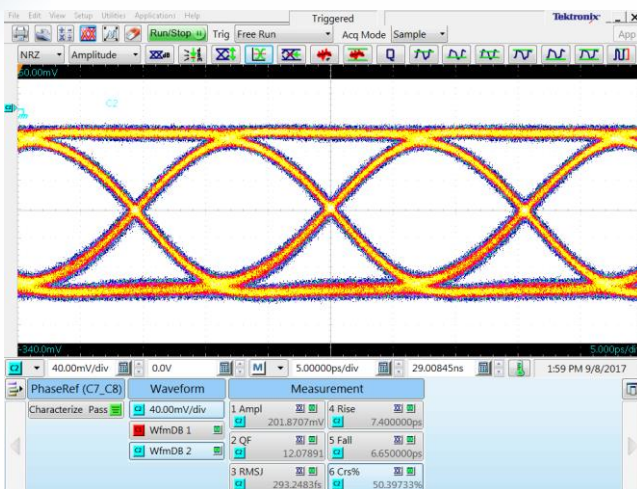
Clock/ Out @ 62 Gbps → 31 GHz



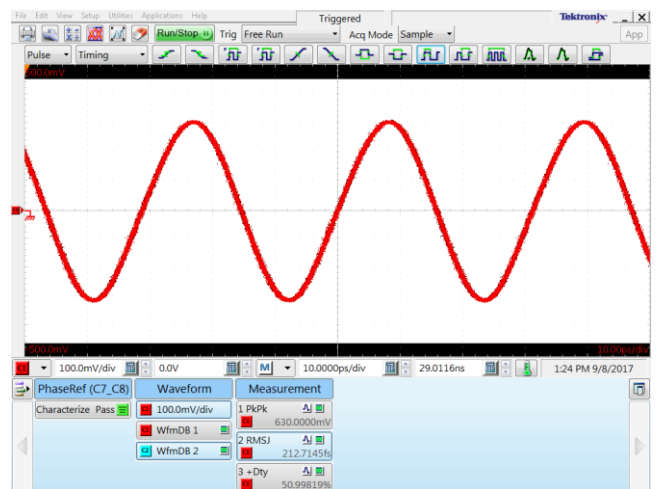
Data In @ 63 Gbps



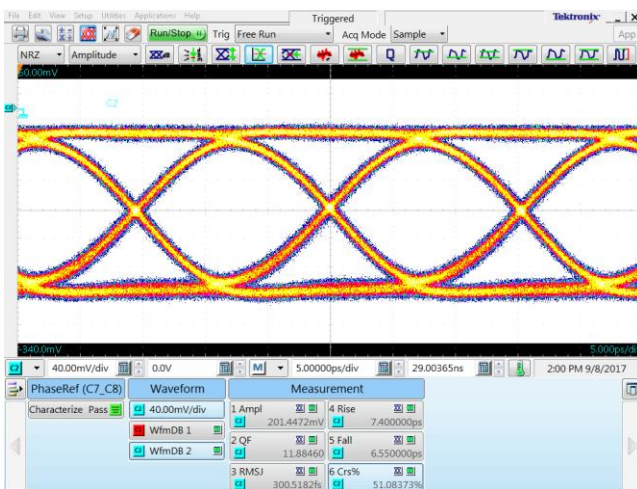
Clock/ Out @ 63 Gbps → 31.5 GHz



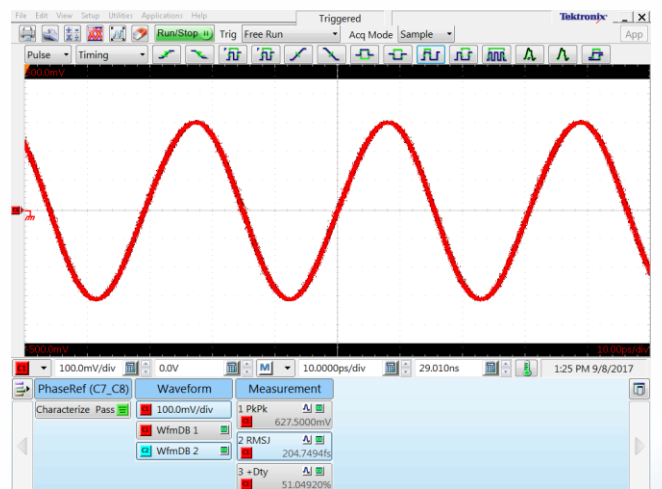
Data In @ 64 Gbps



Clock/ Out @ 64 Gbps → 32 GHz



Data In @ 65 Gbps

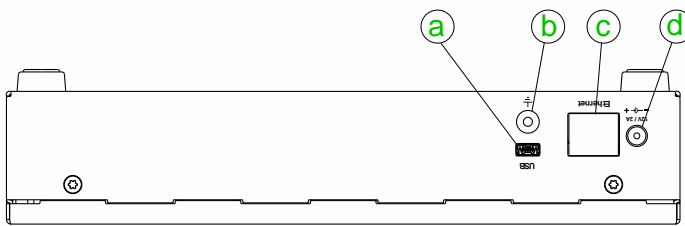
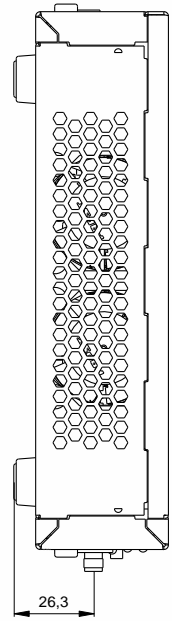
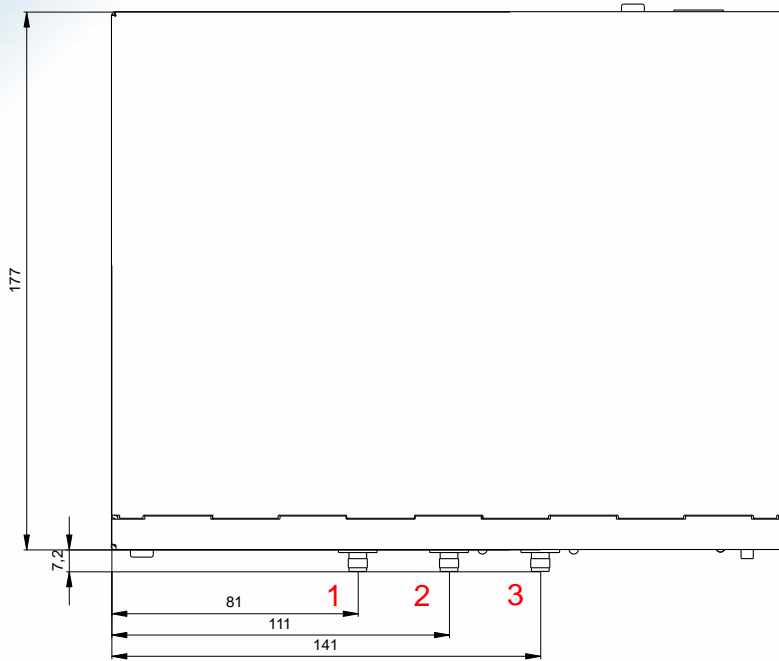
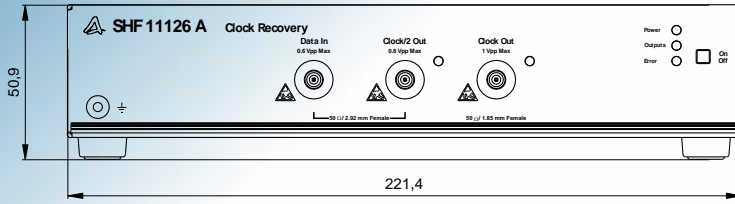


Clock/ Out @ 65 Gbps → 32.5 GHz





# Outline Drawing



Pos.	Designation	Connector
1	Data In	2.92mm (K) Female
2	Clock/2 Out	2.92mm (K) Female
3	Clock Out	1.85mm (V) Female

Pos.	Designation
a	USB
b	GND
c	Ethernet
d	Power Supply

all dimensions in mm