

# **Packaging the Future - Unlocking Photonics in Switzerland**

Keynote Presentation – J.BORSENBARGER

Version V1.0 / July 2025

„Advanced T&M Accessible, Local and Human“

# OVERVIEW, WHO WE ARE ?

## YOTAVIS AG, SCCC Lab and YOTASYS AG



SIPBB



ψ YOTAVIS

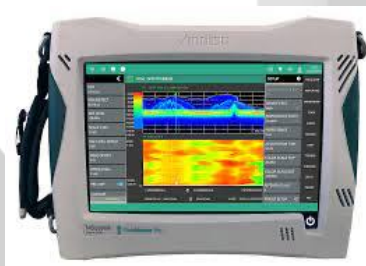
Sales and support  
Services

ψ YOTASYS  
COGNITELLIGENT SYSTEMS

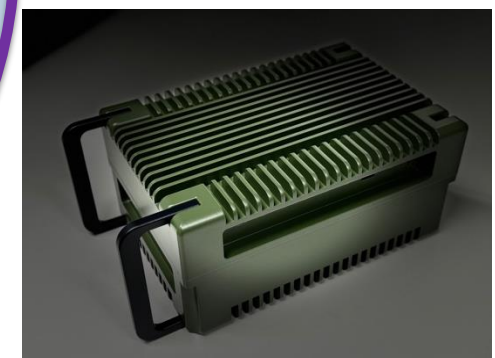
Spin-off

 Swiss  
Communication  
Competence  
Center

Laboratory



Test & Measurement



AI enhanced Products

# OVERVIEW, WHO WE ARE ?

## YOTAVIS AG



### Key Partners



**YOTAVIS AG - „Quality Assurance for Telecommunications“**

Test- and  
Measurement

**Products**

Assessments  
Quality Assurance

**Services**

Systems and custom  
specific products

**Solutions**

**Market Telecommunication (ICT) Switzerland**



# UNLOCK SWISS PHOTONIC TESTING

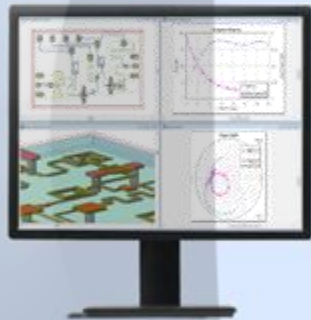
PIC Development Flow



## Design & Device Test in R&D Lab

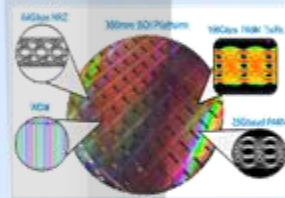
## Validation & Manufacturing Test

Design &  
Simulation



EDA Tool

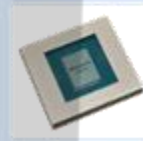
R&D Lab  
Test



SiPh Chip



LD Chip



ASIC Chip

Wafer  
Test



Prober



ATE

Packaged  
Test



Optical Engine



ELSFP



ASIC Eva Board

System Test

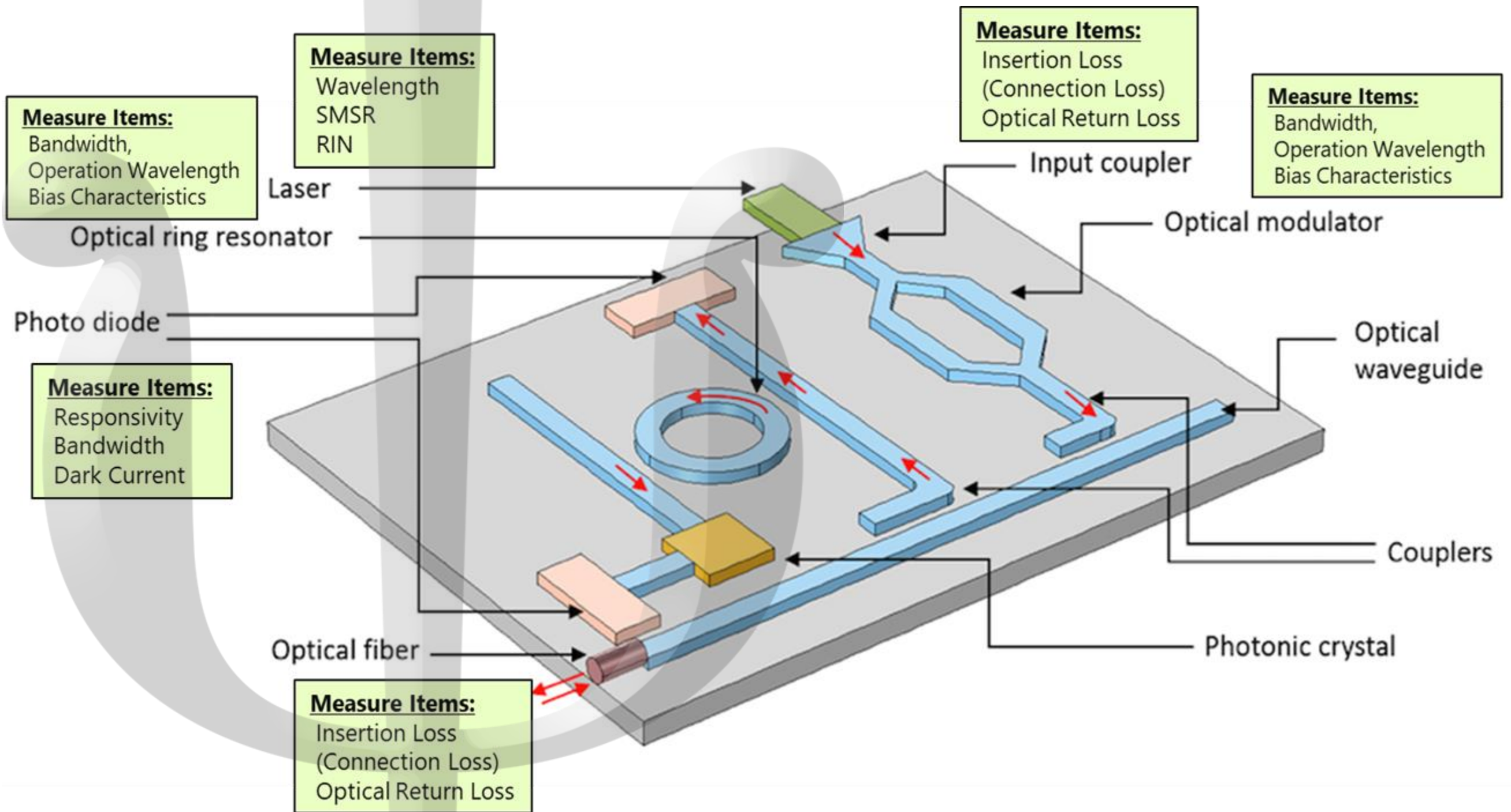


CPO Switch



# UNLOCK SWISS PHOTONIC TESTING

## PIC Measurement Items



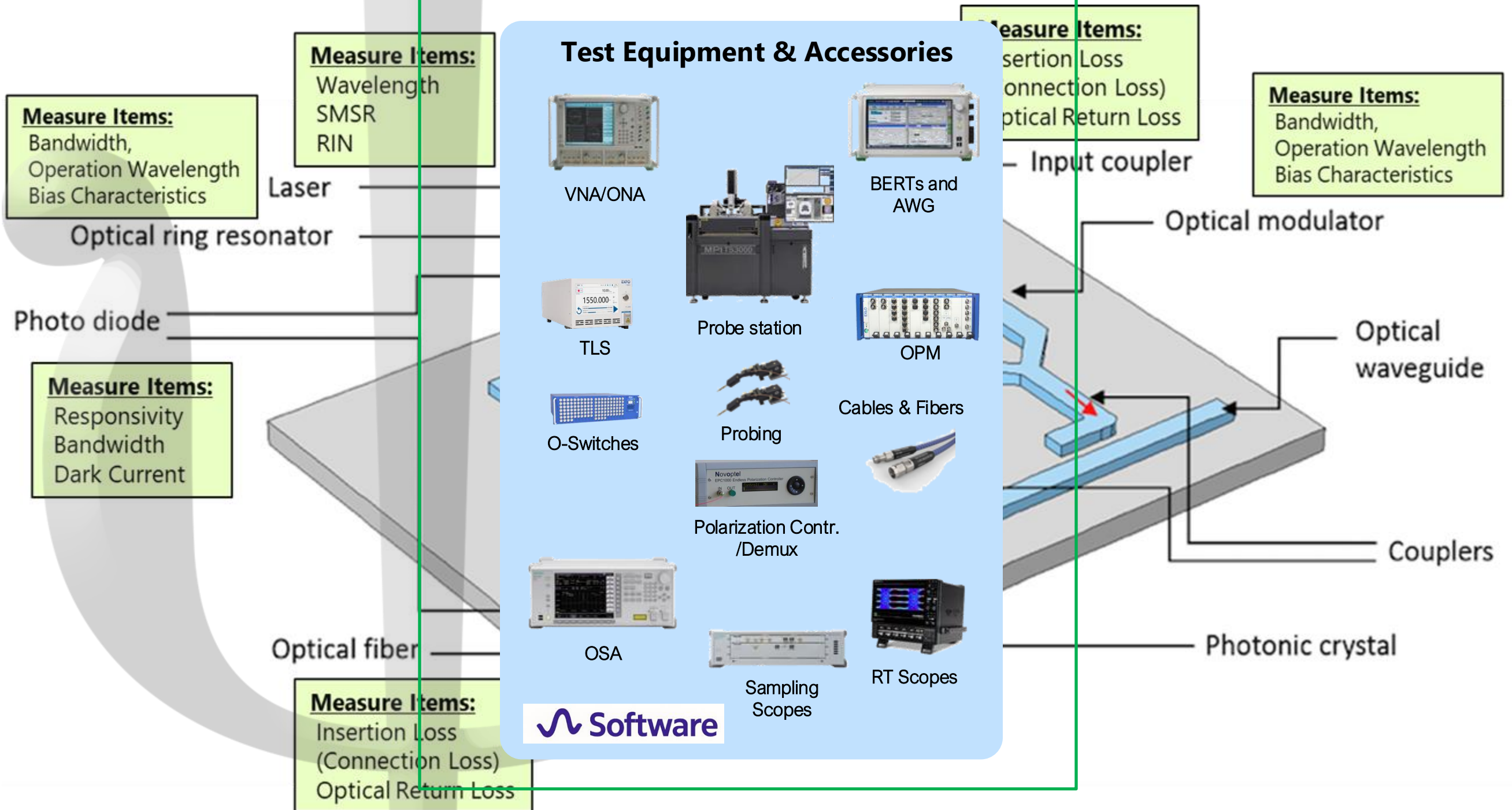
Source: <https://www.comsol.com/blogs/silicon-photonics-designing-and-prototyping-silicon-waveguides/>

# UNLOCK SWISS PHOTONIC TESTING

## PIC Measurement Items



### Your Test & Measurement Solutions



Source: <https://www.comsol.com/blogs/silicon-photonics-designing-and-prototyping-silicon-waveguides/>



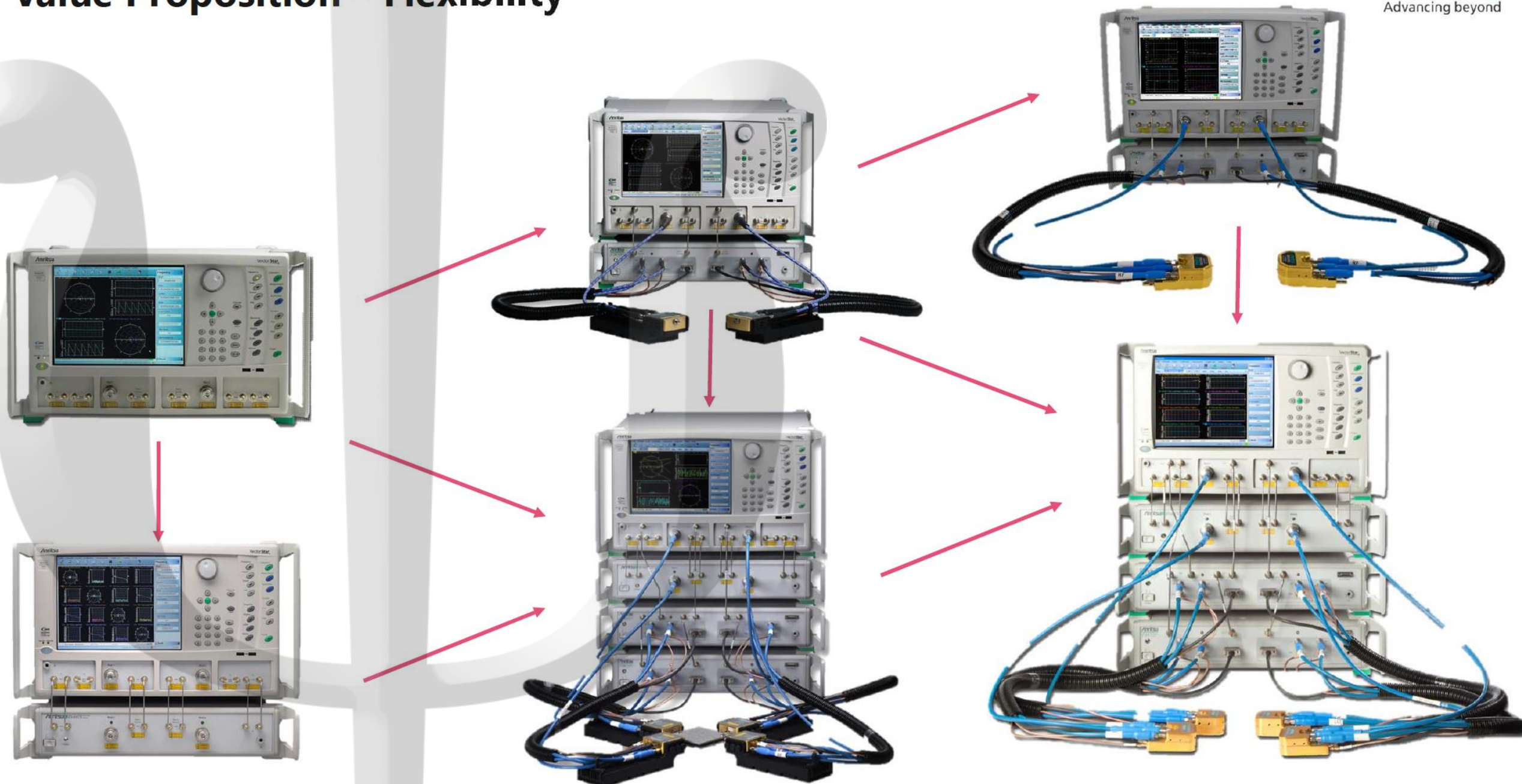
# UNLOCK SWISS PHOTONIC TESTING

Full Flexibility design for Swiss Market



## Value Proposition – Flexibility

Anritsu  
Advancing beyond



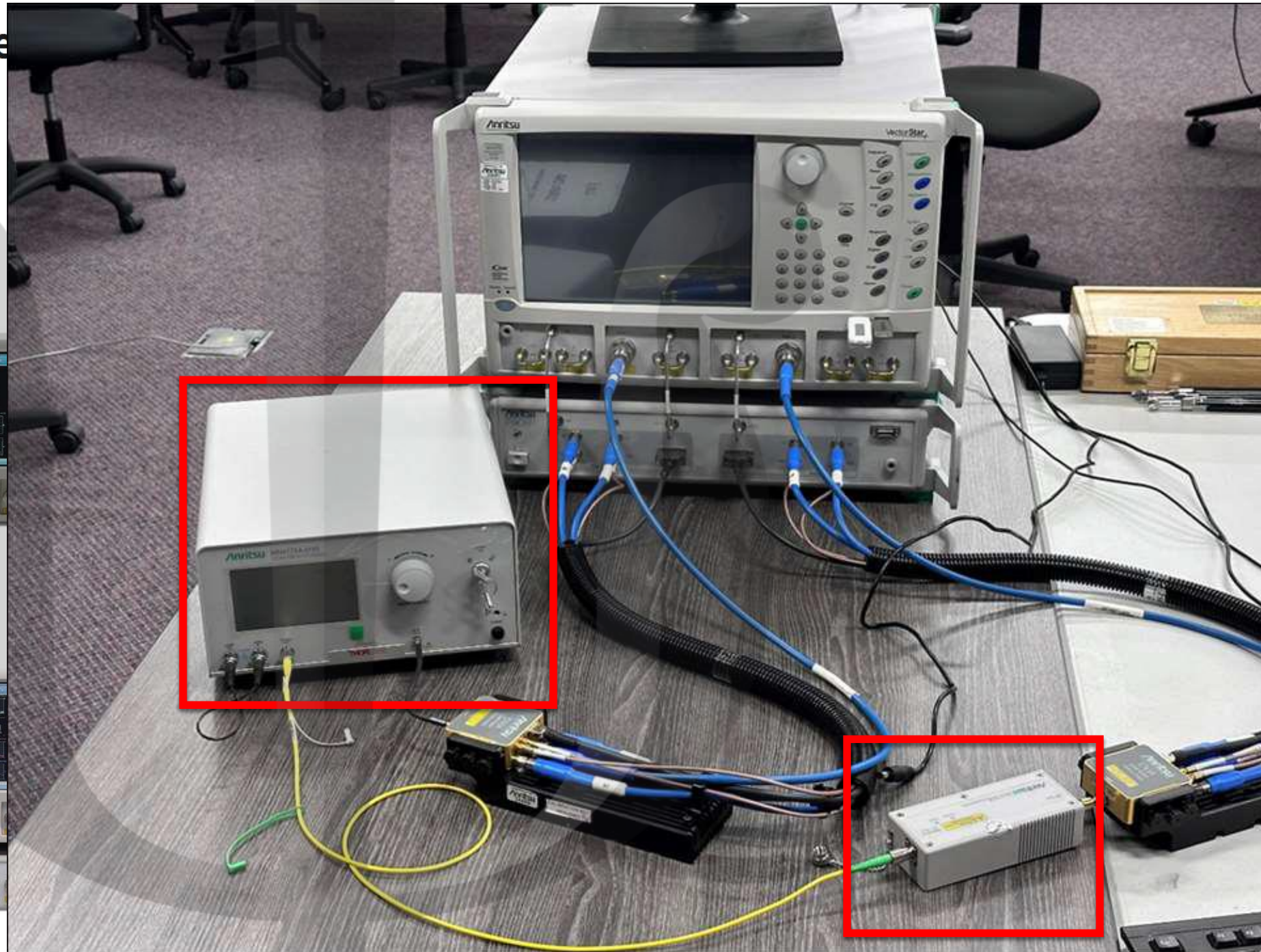


# UNLOCK SWISS PHOTONIC TESTING

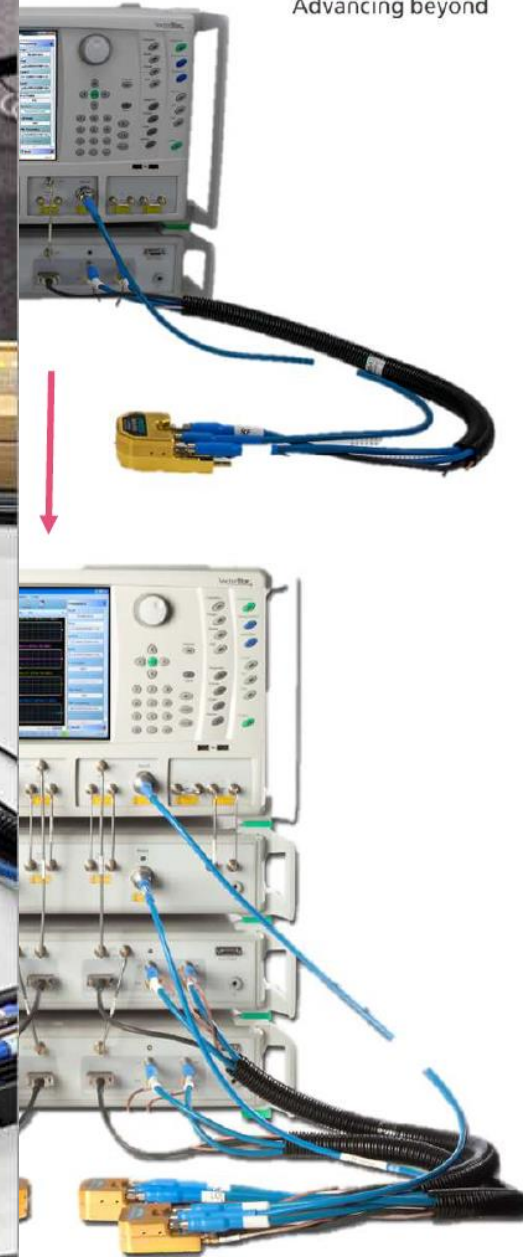
Full Flexibility design for Swiss Market



Value



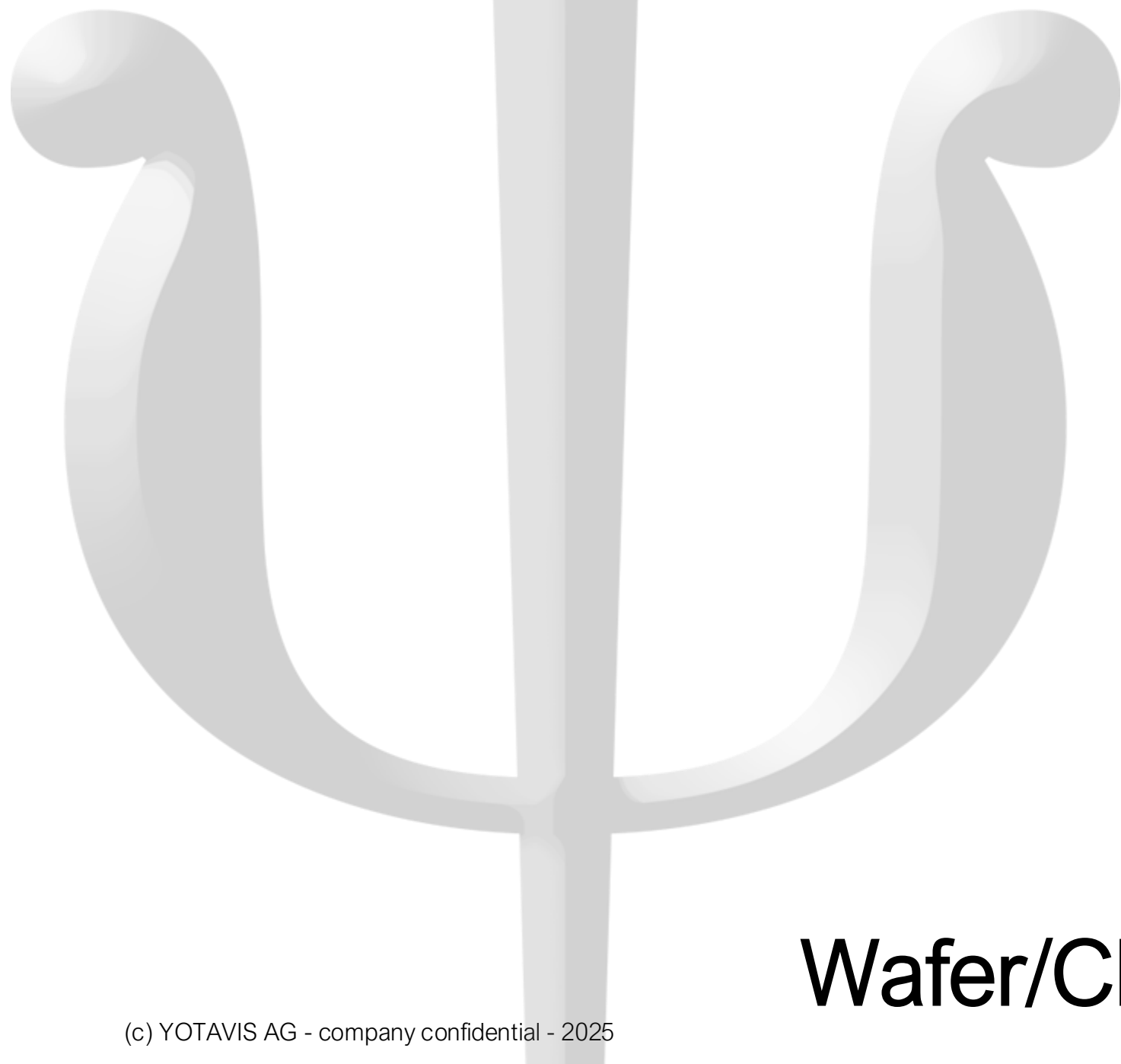
Anritsu  
Advancing beyond





Business of YOTAVIS AG

**UNLOCK SWISS PHOTONIC TESTING**



# Wafer/Chip Testing Solutions

# UNLOCK SWISS PHOTONIC TESTING

Electro-Optical Performance Frequency Domain



## Modulators

- Tunable Laser Source, Optoelectronic Network Analyzer, O/E Detector
- Broadband Error-corrected Transfer Function, Group Delay measurements using reference detector



ONA ME7848A



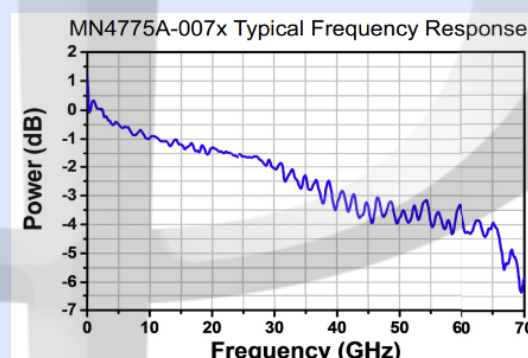
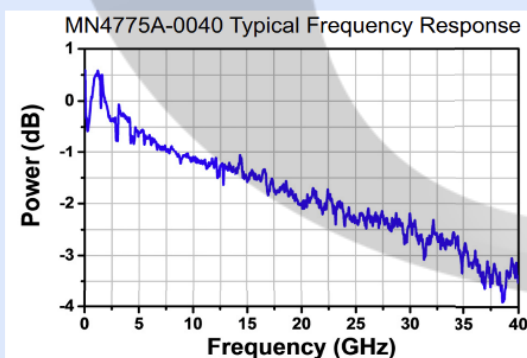
TLS



Silicon Photonics Wafer



O/E Detector MN4765B



## Detectors

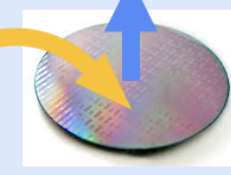
- Optoelectronic Network Analyzer, E/O Modulator
- Broadband Error-corrected Transfer Function, Group Delay measurements using calibrated reference detector and modulator



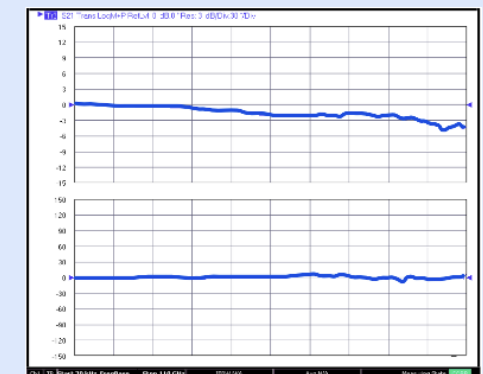
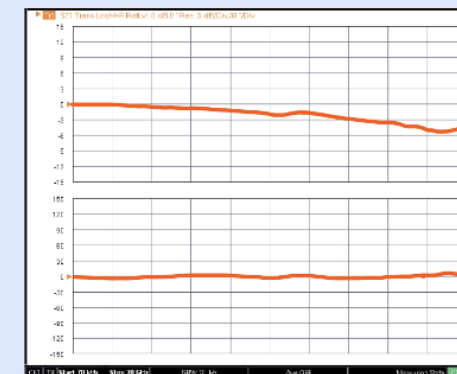
ONA ME7848A



E/O Modulator MN4775A



Silicon Photonics Wafer



# Wafer/Chip Testing Solutions



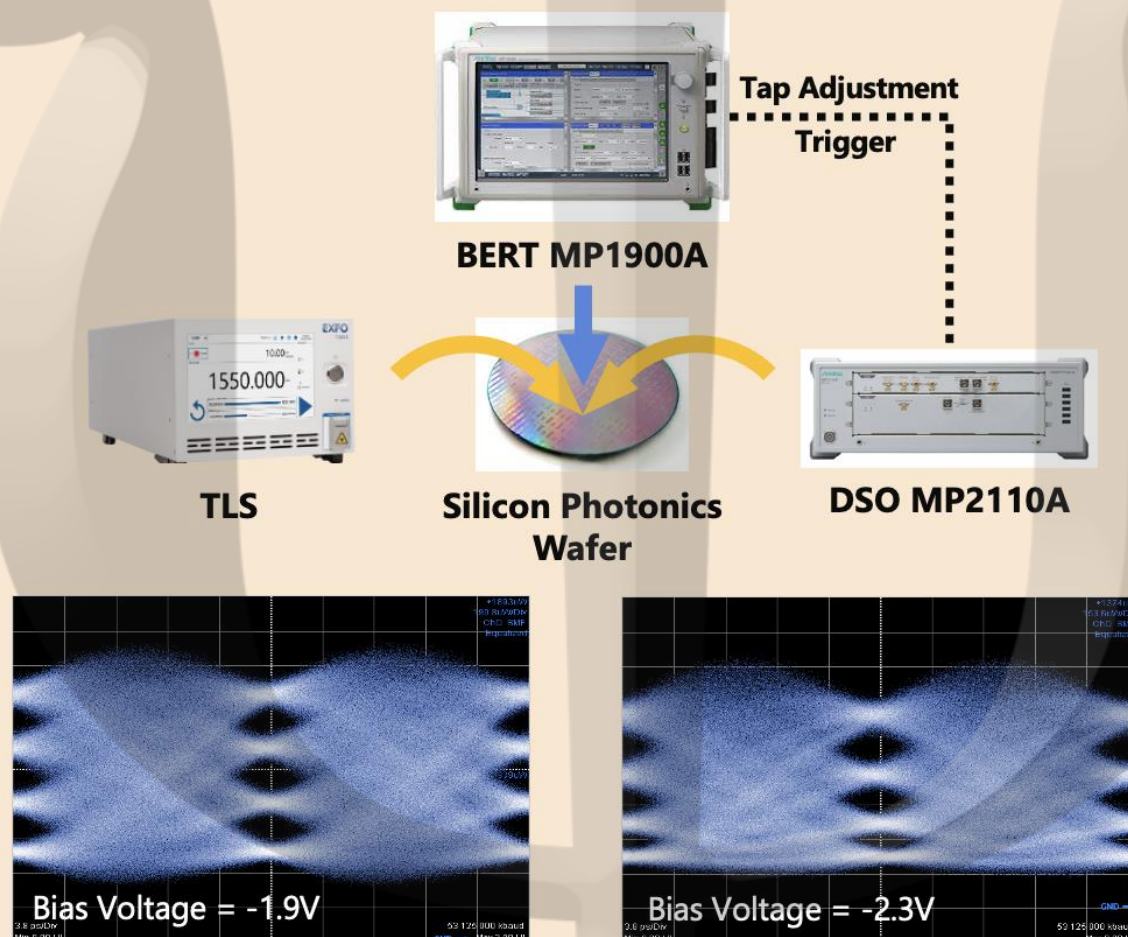
# UNLOCK SWISS PHOTONIC TESTING

Electro-Optical Performance Time Domain



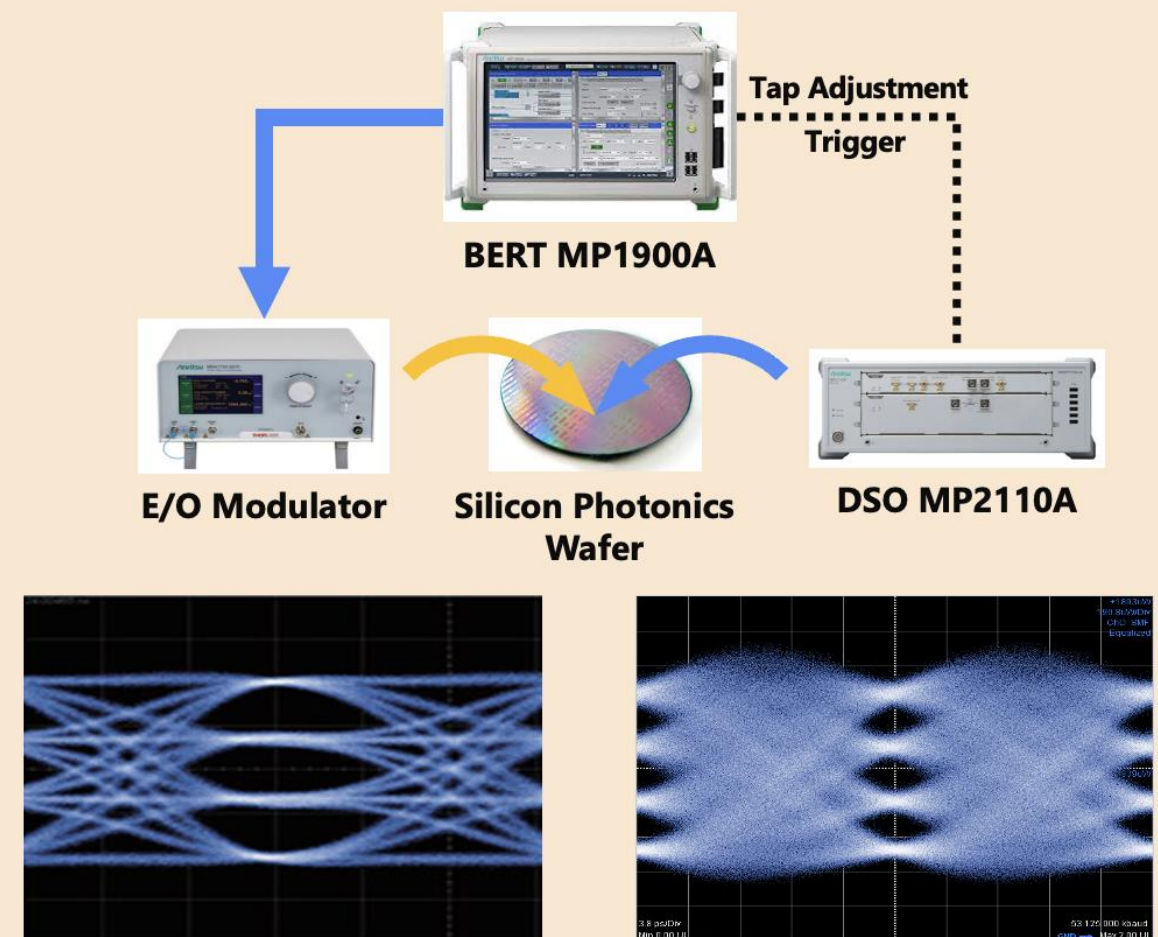
## Modulators

- Bit Error Rate Tester (Generator), Sampling Scope, Tunable Laser Source
- Analysis TDECQ, RIN, OMA, Linearity, etc.
- IEEE/OIF standard based optical measurements



## Detectors

- Bit Error Rate Tester (Generator), E/O Modulator, Sampling Scope
- Analysis TDECQ, RIN, OMA, Linearity, etc.
- IEEE/OIF standard based optical measurements



# Wafer/Chip Testing Solutions

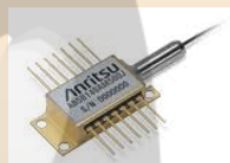
# UNLOCK SWISS PHOTONIC TESTING

Wavelength/Polarization Dependency Testing



## Waveguides, Couplers, Filters

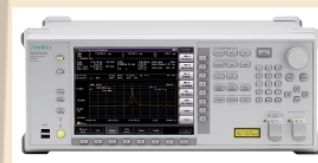
- Super Luminescent Diode, Optical Spectrum Analyzer
- Fast Sweep
- Economic price



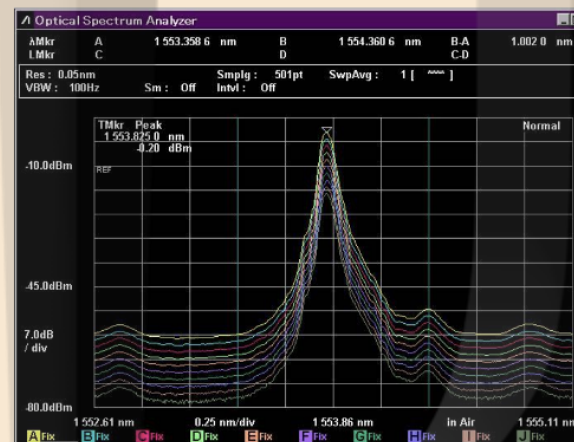
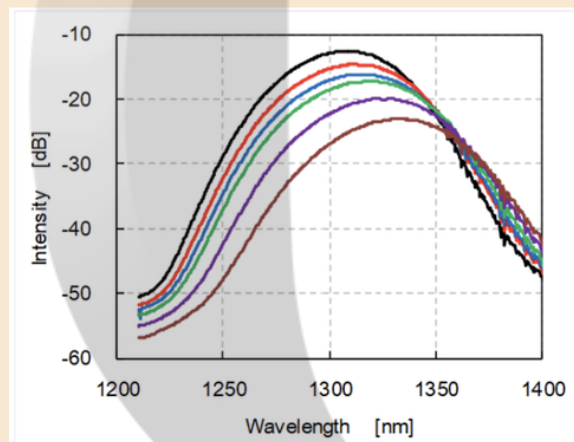
**SLD ASxxx**



**Silicon Photonics Wafer**

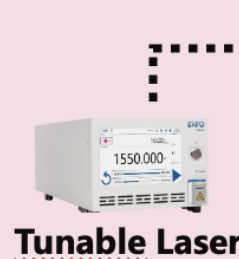


**OSA MS9740B**



## Waveguides, Couplers, Filters

- Tunable Laser Source, Optical Power Meter, Polarization Control Unit
- High Dynamic Range
- High Wavelength Resolution
- Multichannel testing
- Polarization Dependent Loss measurements



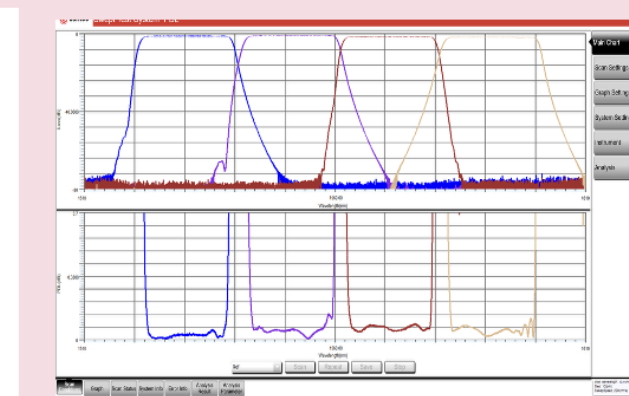
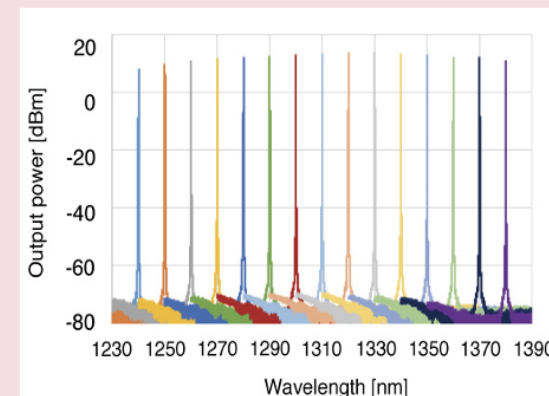
**Tunable Laser**



**Silicon Photonics Wafer**



**Multi channel PM**



# Wafer/Chip Testing Solutions



# UNLOCK SWISS PHOTONIC TESTING

Electrical Reflection and Optical Reflection Testing

## Modulators, Detectors

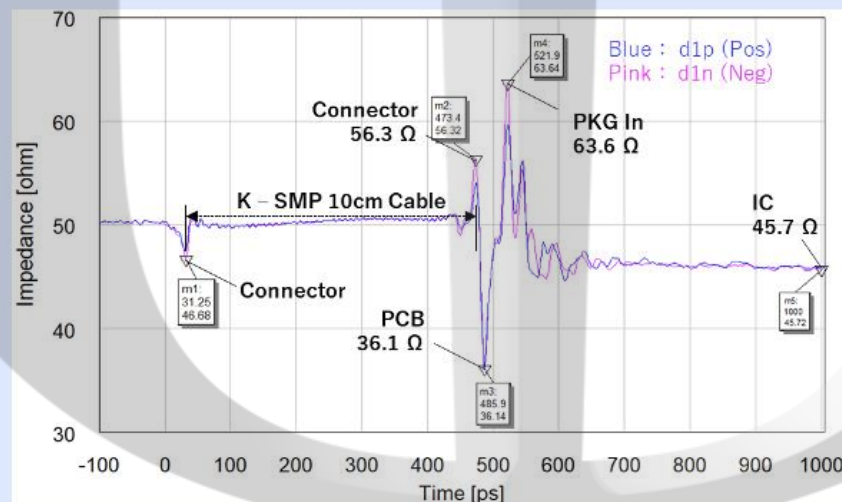
- Vector Network Analyzer
- Time Domain Reflectometer measurements
- Reflection and Impedance measurements of electrical connections, wire-bonds, connectors



VNA ME7838A



Silicon Photonics Wafer



## Waveguides, Grating Couplers

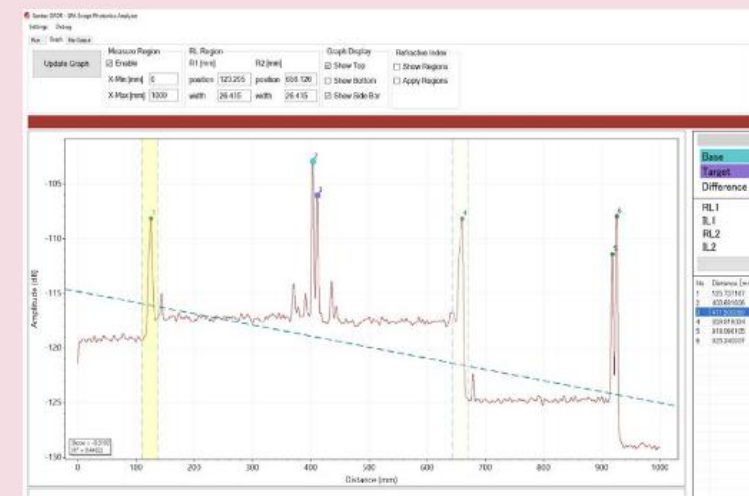
- Optical Frequency Domain Reflectometer
- Highest-resolution reflectometer <5  $\mu\text{m}$
- Structure and coupling loss measurements
- Waveguide alignment measurements



Silicon Photonics Wafer



Photonic Analyser



# Wafer/Chip Testing Solutions

Business of YOTAVIS AG

**UNLOCK SWISS PHOTONIC TESTING**



# Module/System Testing Solutions



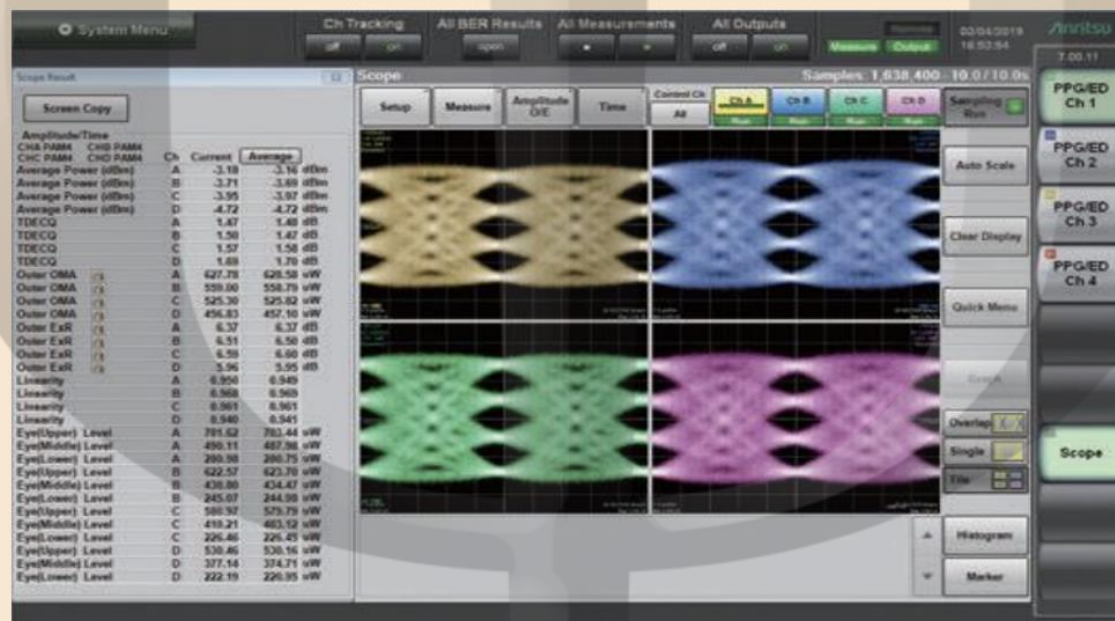
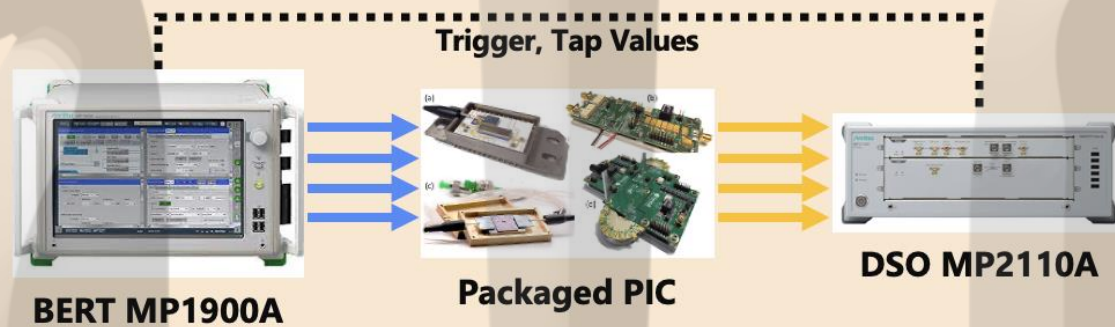
# UNLOCK SWISS PHOTONIC TESTING

## Module/System Functional Performance testing



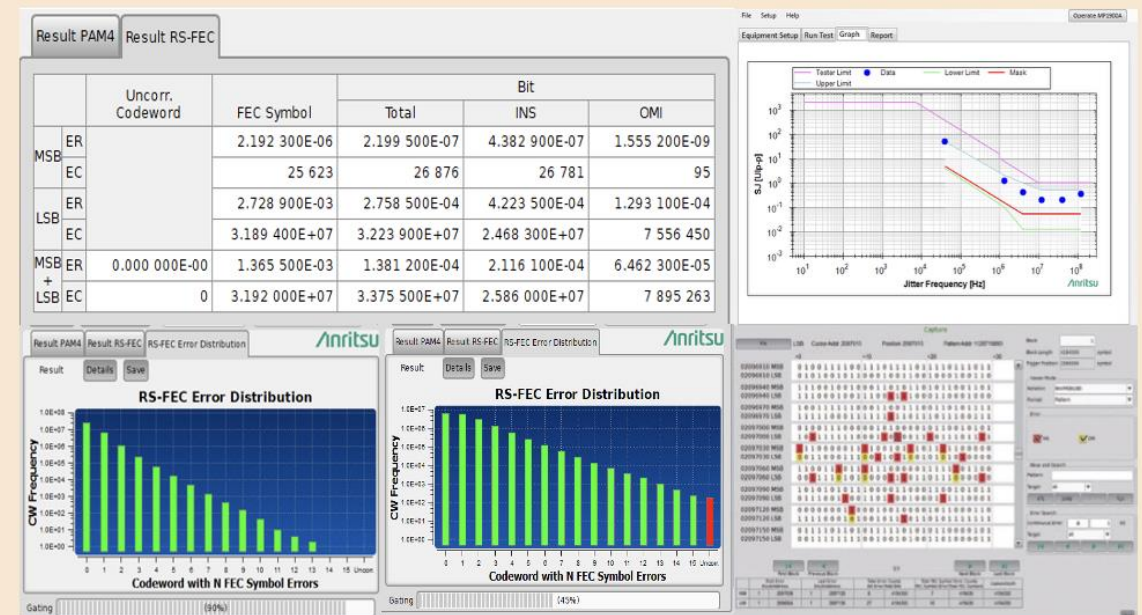
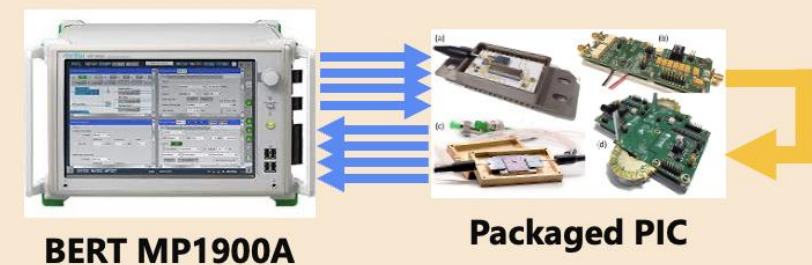
# Transmitters

- Bit Error Rate Tester (Generator), Sampling Scope
- Analysis TDECQ, RIN, OMA, Linearity, etc.
- IEEE/OIF standard based optical measurements



## Receivers

- Bit Error Rate Tester (Generator), Sampling Scope
- Analysis BER, Symbol Errors, FEC Performance
- IEEE/OIF standard based measurements



# Module/System Testing Solutions



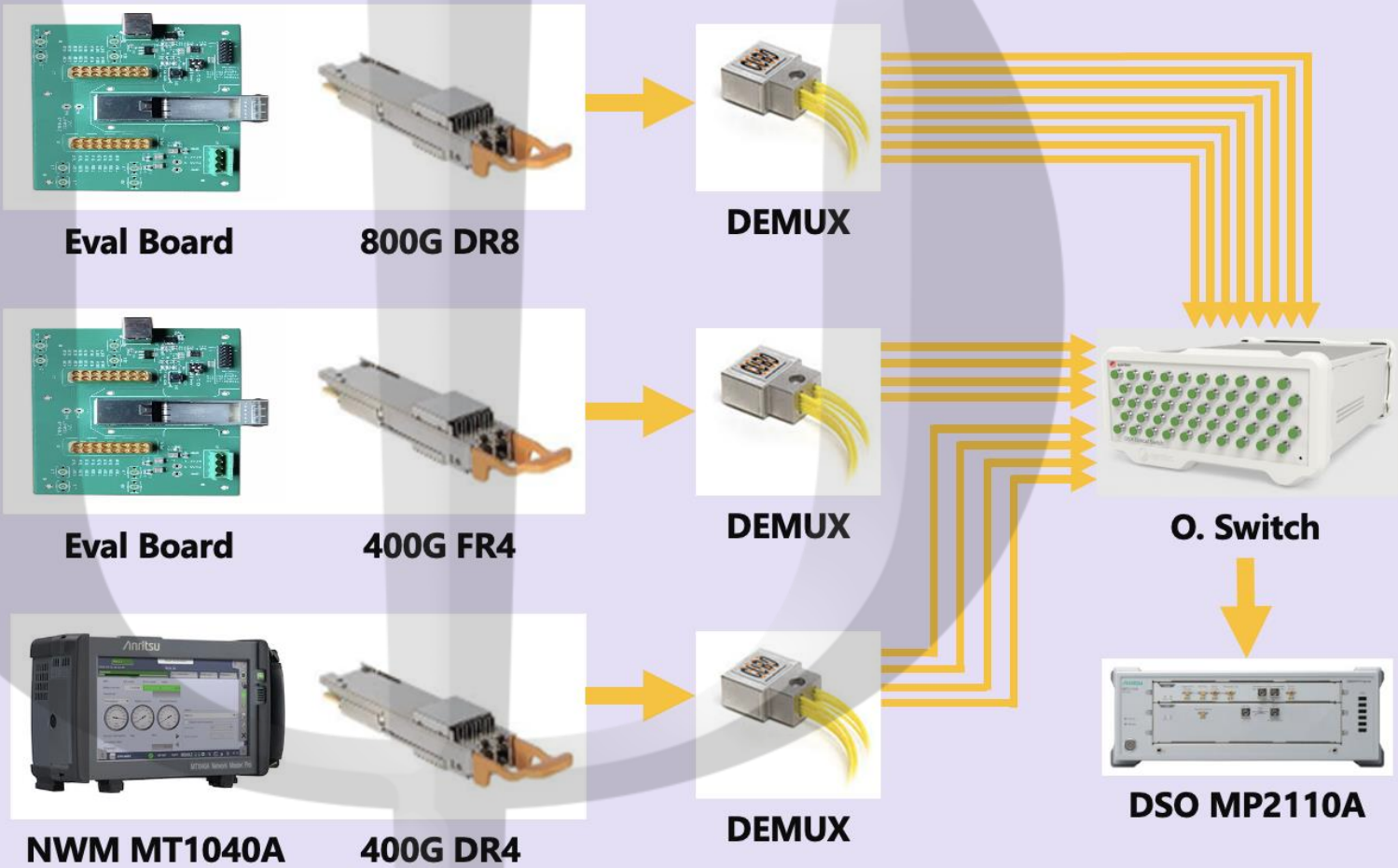
# UNLOCK SWISS PHOTONIC TESTING

Module/System Multi Channel Performance testing



## Transceivers, Linear Pluggable Optics, Near Packaged Optics, Co-Packaged Optics

- Transport Analyzer, Optical Switch, Sampling Scope
- Multichannel 16ch/32ch test, TDECQ, RIN, OMA, Linearity, etc. with high dynamic range
- Test time can dramatically reduce from manual connection and measurement
- About 5 times faster measurement with 4 channel scope



Order	ChA via CRU	ChB
1	800GbE-DR8 L0	800GbE-DR8 L1
2	800GbE-DR8 L2	800GbE-DR8 L3
3	800GbE-DR8 L4	800GbE-DR8 L5
4	800GbE-DR8 L6	800GbE-DR8 L7
5	400GbE-FR4 L0	400GbE-FR4 L1
6	400GbE-FR4 L2	400GbE-FR4 L3
7	400GbE-DR4 L0	400GbE-DR4 L1
8	400GbE-DR4 L2	400GbE-DR4 L3

Switch #1	Loss [dB]	Switch #2	Loss [dB]
Ch1	0.93	Ch1	0.63
Ch2	0.76	Ch2	0.43
Ch3	0.86	Ch3	0.65
Ch4	0.71	Ch4	0.42
Ch5	0.72	Ch5	0.54
Ch6	0.52	Ch6	0.61
Ch7	0.89	Ch7	0.45
Ch8	0.66	Ch8	0.55

## Module/System Testing Solutions

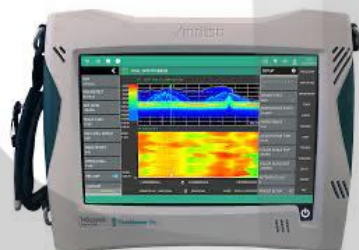


# OVERVIEW, WHO WE ARE ?

## YOTAVIS AG, SCCC Lab and YOTASYS AG



Sales and support  
Services



Test & Measurement

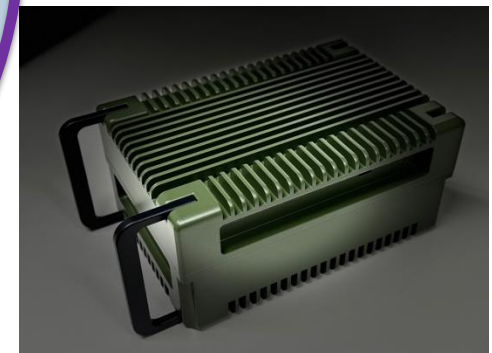
SIPBB



Spin-off



Laboratory



AI enhanced Products



# OVERVIEW, WHO WE ARE ?

## Swiss Communication Competence Center





# OVERVIEW, WHO WE ARE ?

## Swiss Communication Competence Center



SCCC Lab  
**PARTNERSHIP**



° Test & Measurement Official **PARTNER**

° Expanding SCCC Lab → SwissPIC clean Room



# Let's rock the future of photonics Together



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Schweiz

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