

## 安捷倫儀器搭配 MXP 相關配件使用範例



### MXP – Evaluation kit

**Set includes**

**Assembly**

- > MXP break-out assembly to Suhner-K (2.92 mm)
- > Cable: HUBER+SUHNER MULTIFLEX 53

**PCB**

- > MXP PCB connector
- > Fan-out to MMPX\* (adaptors to Suhner-K included)
- > OST calibration area
- > Material: Rogers RO3003
- > Substrate thickness: 5 mil (0.127 mm)
- > Dielectric constant  $\epsilon_r$ : 3
- > Stack-up: Microstrip

\*) HUBER+SUHNER Series MMPX – 67 GHz precision snap connectors (patented)



1

### Recommended equipment and tooling

- > VNA/suitable test leads
- > Wrench 6/7 mm, torque wrench 8 mm
- > 2.92 mm calibration kit with accessories (e.g. Agilent ECal kit)



2

**Recommended equipment and tooling**

- > VNA/suitable test leads
- > Wrench 6/7 mm, torque wrench 8 mm
- > 2.92 mm calibration kit with accessories (e.g. Agilent ECal kit)



3

**Return loss / Insertion loss measurement**

- > Connect your cal kit to your VNA test lead
- > Use the required torque wrench
- > Follow calibration procedure of your VNA







4

#### Return loss / Insertion loss measurement

- > Connect your cal kit to your VNA test lead
- > Use the required torque wrench
- > Follow calibration procedure of your VNA



5

#### Return loss / Insertion loss measurement

- > Connect your cal kit to your VNA test lead
- > Use the required torque wrench
- > Follow calibration procedure of your VNA



6

#### Return loss / Insertion loss measurement

- > Connect your cal kit to your VNA test lead
- > Use the required torque wrench
- > Follow calibration procedure of your VNA



7

#### Return loss / Insertion loss measurement

- > Use unknown thru calibration, even if the test ports of the testleads are intermateable
- > Finish calibration





8

**Return loss / Insertion loss measurement**

- > Connect the SK/MMPX adaptor to port 1
- > Use the required torque wrench



9

**Return loss / Insertion loss measurement**

- > Connect the SK/MMPX adaptor to port 1
- > Use the required torque wrench



10

**Return loss / Insertion loss measurement**

- > Connect the MXP assembly to port 2
- > Use the required torque wrench

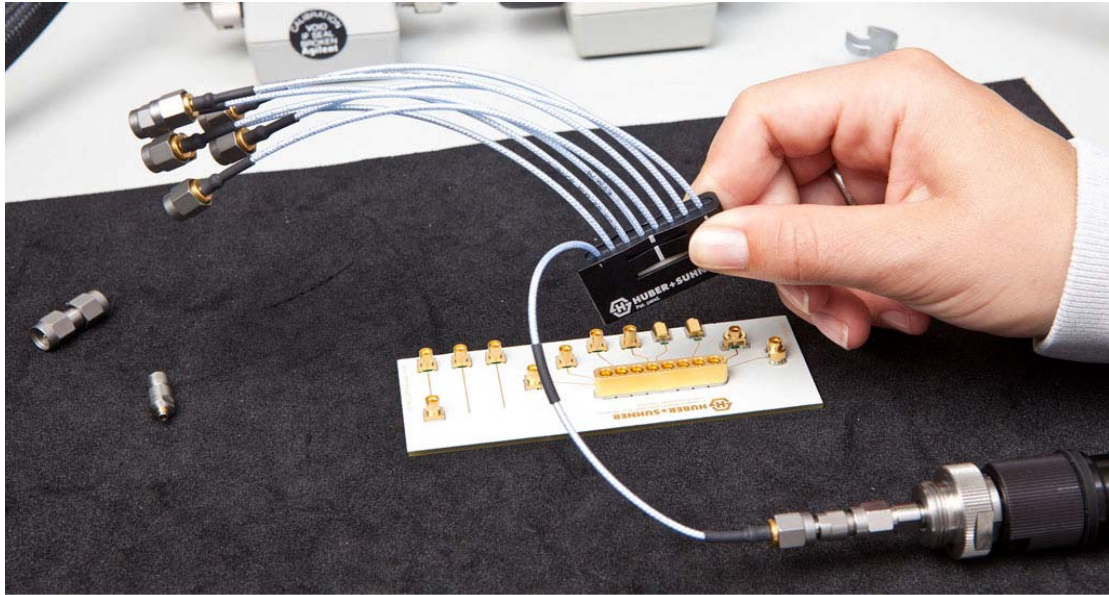


11

**Return loss / Insertion loss measurement**

- > Connect the MXP cable connector to the evaluation PCB

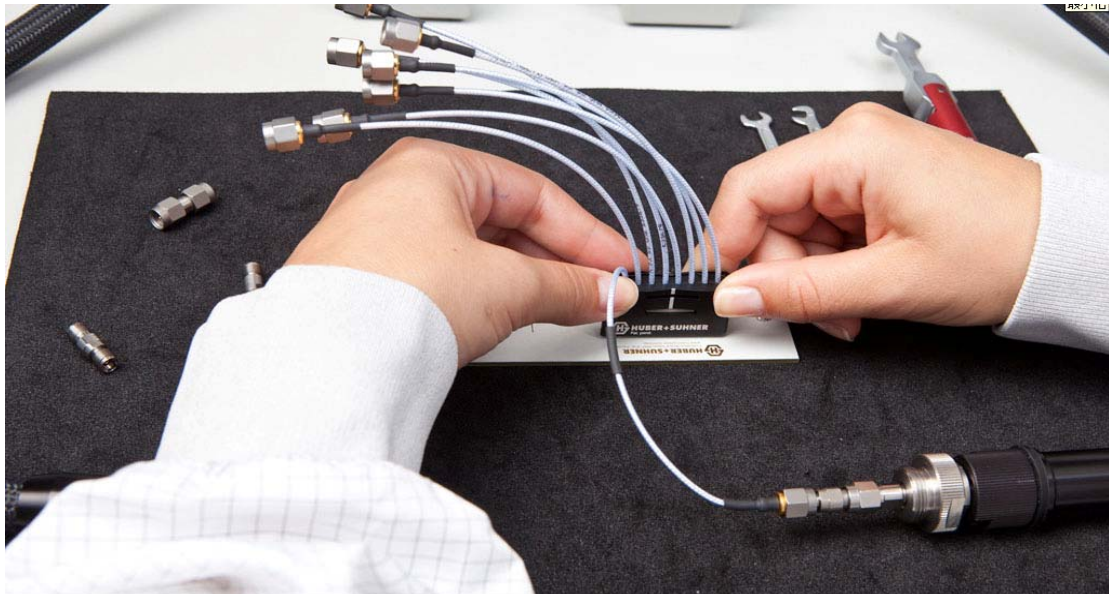




12

**Return loss / Insertion loss measurement**

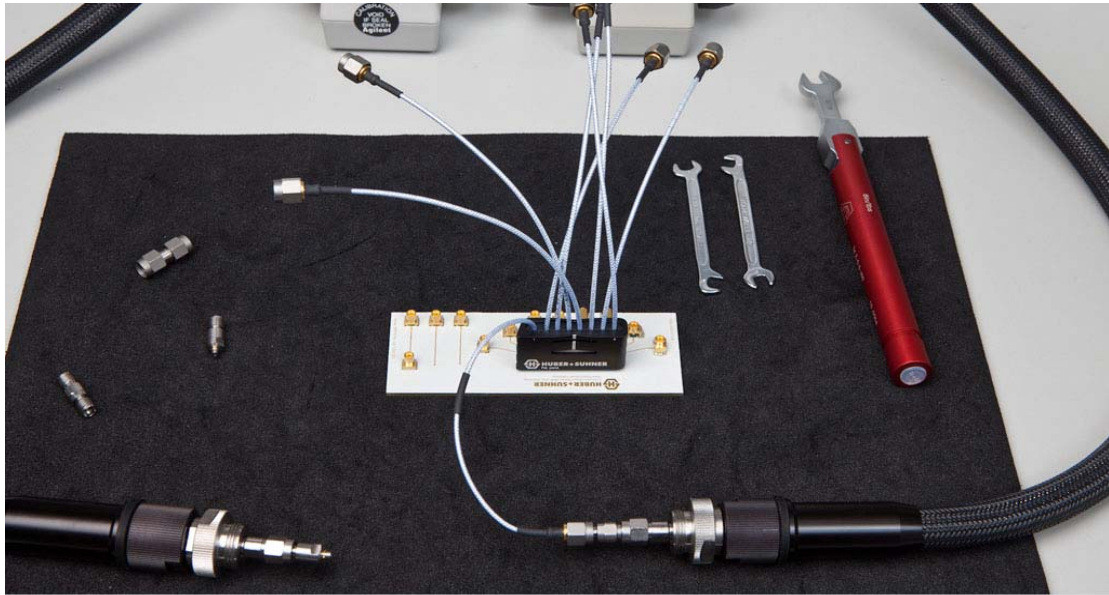
> Connect the MXP cable connector to the evaluation PCB



13

**Return loss / Insertion loss measurement**

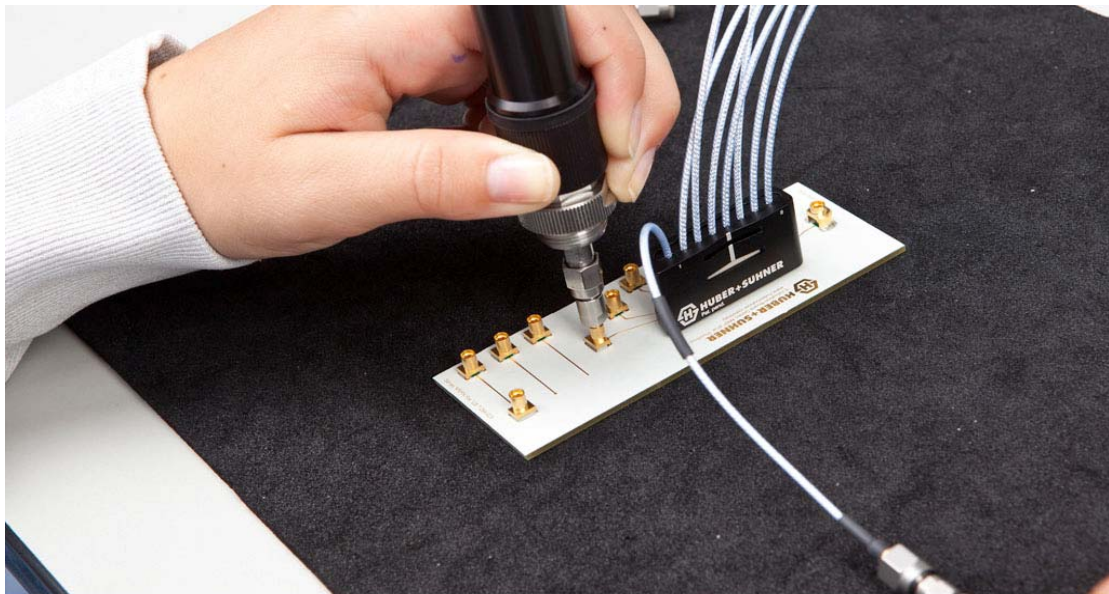
> Connect the MXP cable connector to the evaluation PCB



14

**Return loss / Insertion loss measurement**

> Connect the MXP cable connector to the evaluation PCB



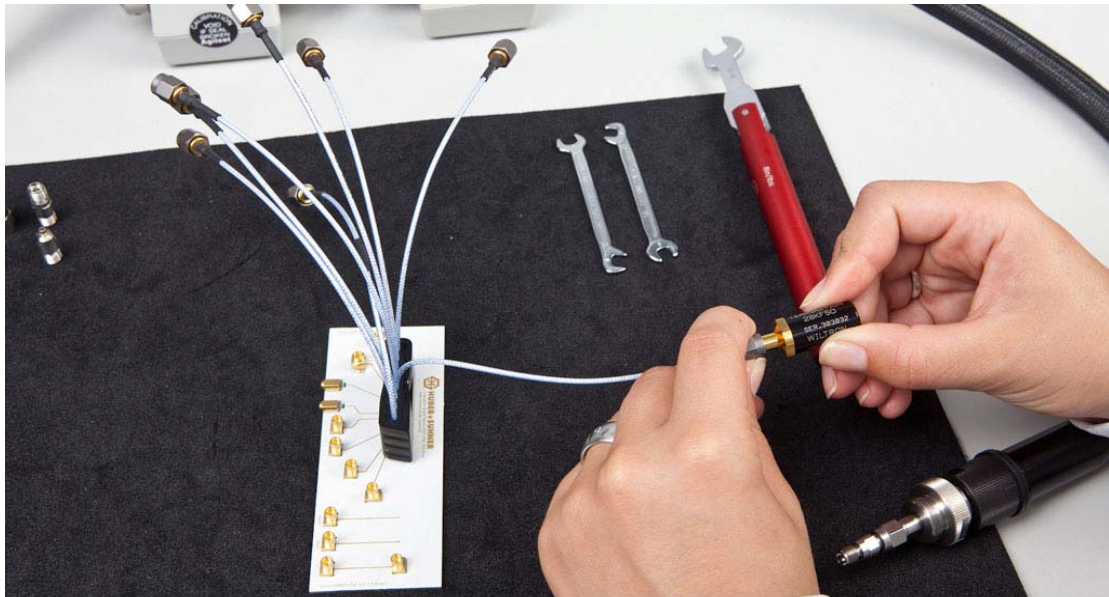
15

**Return loss / Insertion loss measurement**

> Connect the test port 1 carefully with the SK/MMPX adapter to the corresponding channel  
 > Do not apply uncontrolled force (e.g. via the heavy/stiff test lead) to the MMPX PCB connector



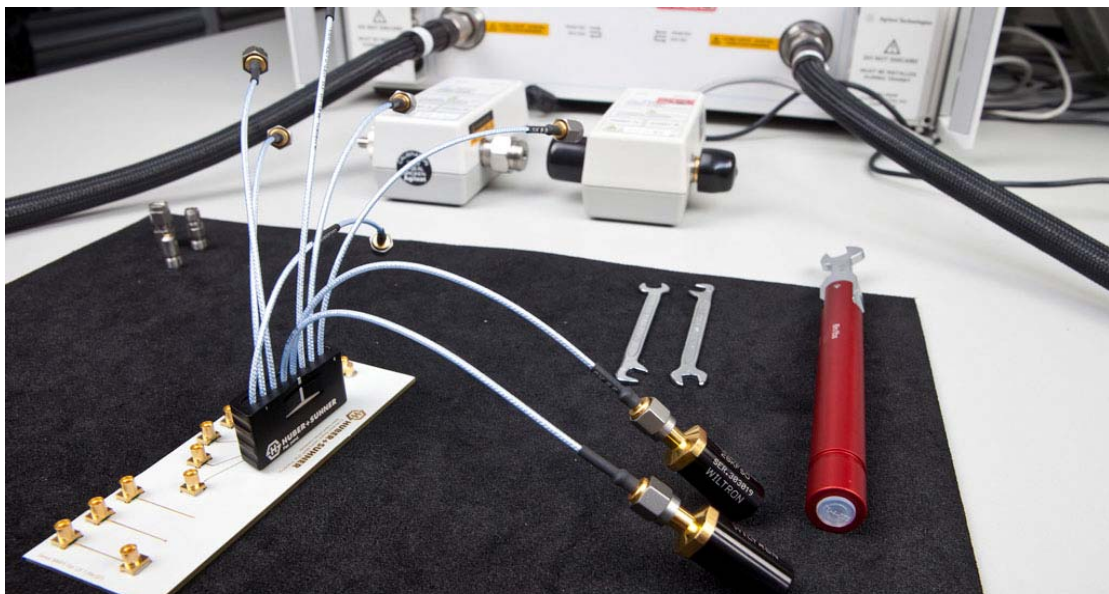




16

#### Cross-talk measurement

- > Connect two 2.92 mm 50 Ohm loads to adjacent channels of the MXP assembly (e.g. channel 4 and 5 for easiest arrangement of the test leads)
- > Use the required torque wrench



17

#### Cross-talk measurement

- > Connect two 2.92 mm 50 Ohm loads to adjacent channels of the MXP assembly (e.g. channel 4 and 5 for easiest arrangement of the test leads)
- > Use the required torque wrench



18

**Cross-talk measurement**

- > Attach the second SK/MMPX adapter to port 2
- > Use required torque wrench



19

**Cross-talk measurement**

- > Attach the second SK/MMPX adapter to port 2
- > Use required torque wrench

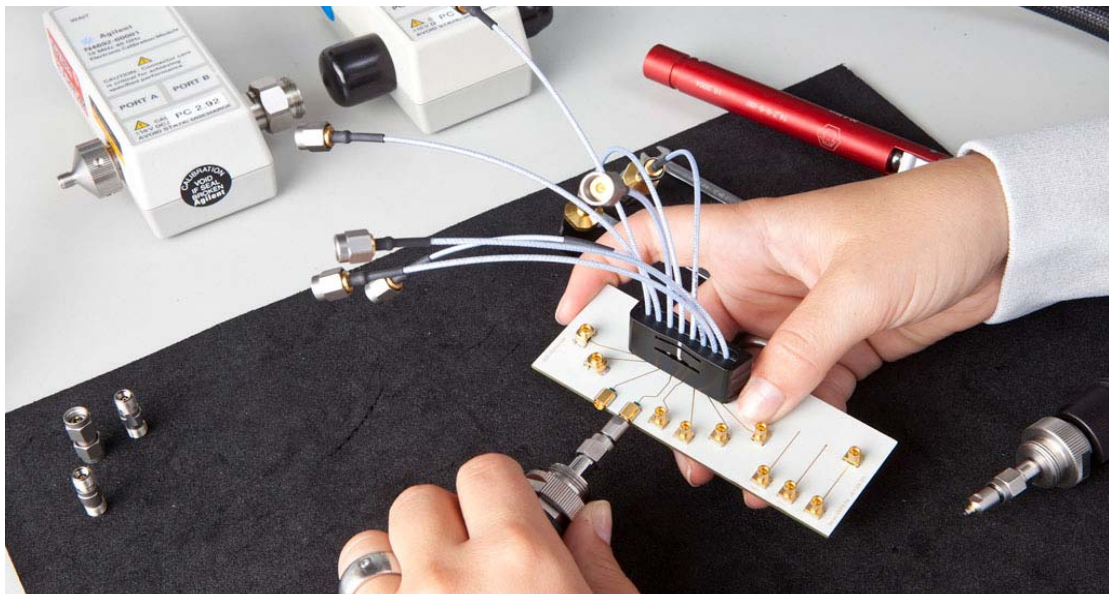




20

#### Cross-talk measurement

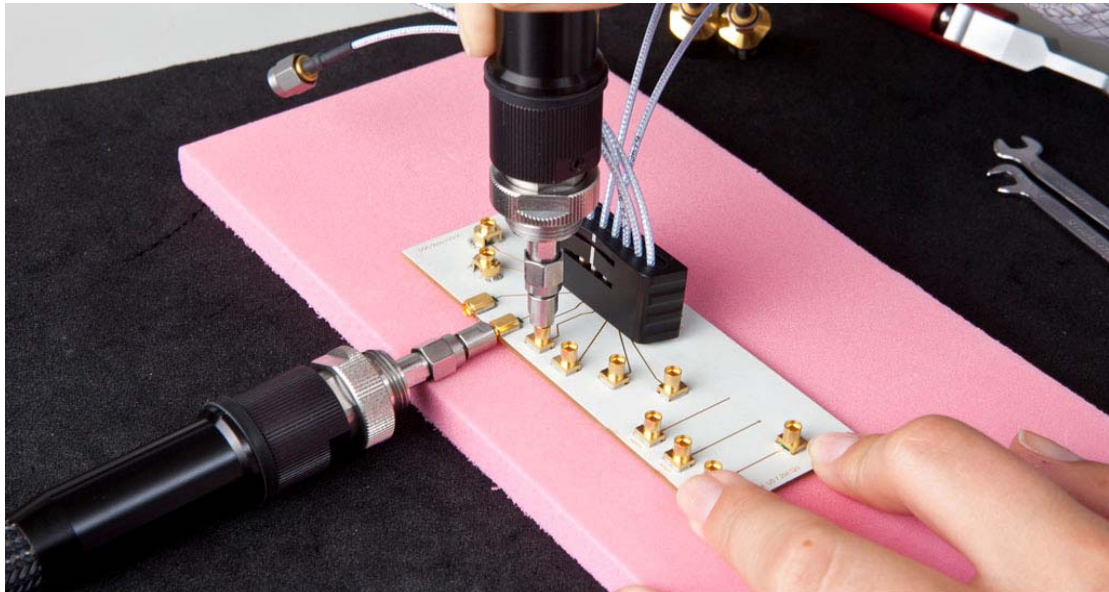
- > Attach the second SK/MMPX adapter to port 2
- > Use required torque wrench



21

#### Cross-talk measurement

- > Connect port 1 to the corresponding MMPX connector on the MXP evaluation PCB
- > Do not apply uncontrolled force (e.g. via the heavy/stiff test lead) to the MMPX PCB connector



22

#### Cross-talk measurement

- > Connect port 2 to the corresponding MMPX connector on the MXP evaluation PCB
- > Do not apply uncontrolled force (e.g. via the heavy/stiff test lead) to the MMPX PCB connector

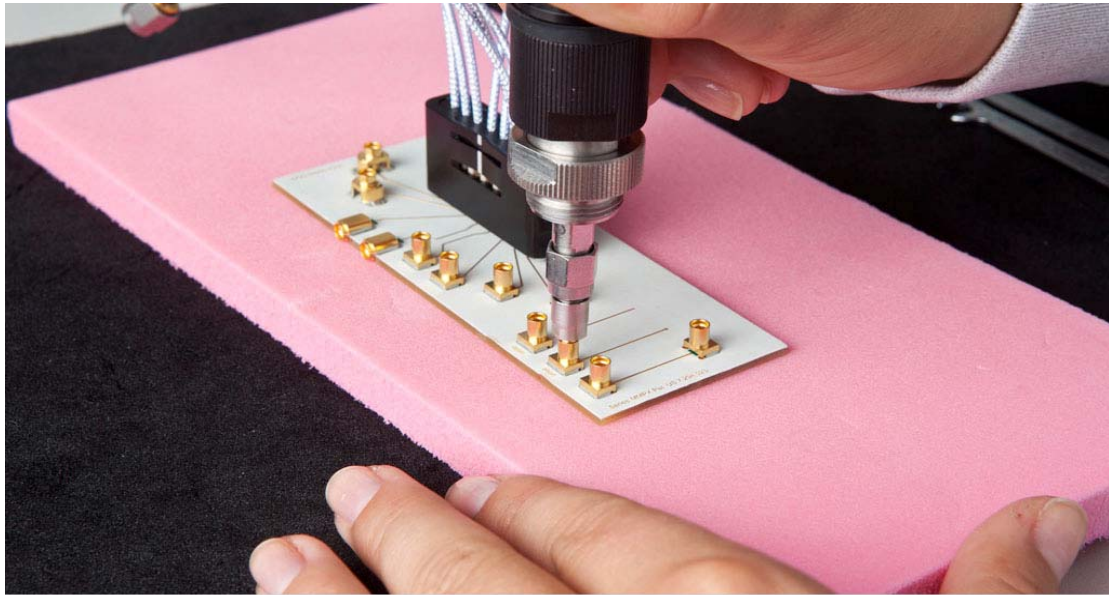


23

#### Open, short and thru

- > Open and short structure helps you to identify the PCB transition in TDR





24

Open, short and thru

> Open and short structure helps you to identify the PCB transition in TDR

 **HUBER+SUHNER**  
Excellence in Connectivity Solutions



25

Open, short and thru

> Use the thru to estimate PCB trace losses

 **HUBER+SUHNER**  
Excellence in Connectivity Solutions