SHENZHEN SUPERLINK TECHNOLOGY CO.,LTD.

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RF TEST SOLUTION

Laboratory Applications

SHENZHEN SUPERLINK TECHNOLOGY CO.,LTD.

Our Vision

Establish an international brand and continuously create value for social and human development

Our Mission

Provide value-added products and professional services to society through technology innovation and leadership

Our Core Values

Customer First
Keep Promise
Continuously Improve
Win-Win-Win Cooperation

Shenzhen Superlink Technology Co.,Ltd.

Is founded in 2008, specializing in the development, design and manufacture of interconnection products and solutions.

We own strong scientific research strength, precision equipments and professional management systems. With reliable and consistent quality, we have been recognized by many customers and established long-term strategic partners with many top fortune 500 enterprises globally.

We are professional to provide ODM, OEM and engineering customization services, our related products have been widely used in telecommunications, data communication, test and measurement, medical, industrial automation, military, semiconductor, aerospace and so on. With outstanding technical innovation and professional service as our mission, we provide to customers the most effective interconnection solutions.

Telecom

Health Care

Aerospace

Data Communication

Test Measurement

Industrial Automation

Company Milestone

2008

- **Founded** in Dongguan
- Passed ISO9001:2008

2009

- Factory moved to Shenzhen
- Became a strategic partner of Volex,Times
- Obtained the first patent

2010

- Produced RF cable assemblies
- Obtained UL & CUL certification
- Product frequency up to **20GHz**

2013

- Passed medical certification:ISO13485:2003
- Passed ISO14001:2004
- Product reached **40GHz**

2015

- Passed ISO14
- Became a me
special equipm

4001:2004
ember of Shenzhen
ent association

• Became an IPC member
Established the TEMP BU
• Passed the national high-tech enterprise certification
Products reach **67GHz**
• Established cable processing workshop

2017

2019

• Approved by Guangdong Province RF microwave passive components and system engineering technology research center
• Passed ntellectual property management system certification GB/T29490-2017;
• Successfully developed semiconductor manufacturing and testing products

• Established clean assembly workshop and constant temperature and humidity machine processing workshop
• Product frequency reach **110GHz**

2020

• Obtained Shenzhen Science and Technology Innovation Commission technology center
• Passed IATF16949 :2016
• Obtained **100+** patent certifications

2021

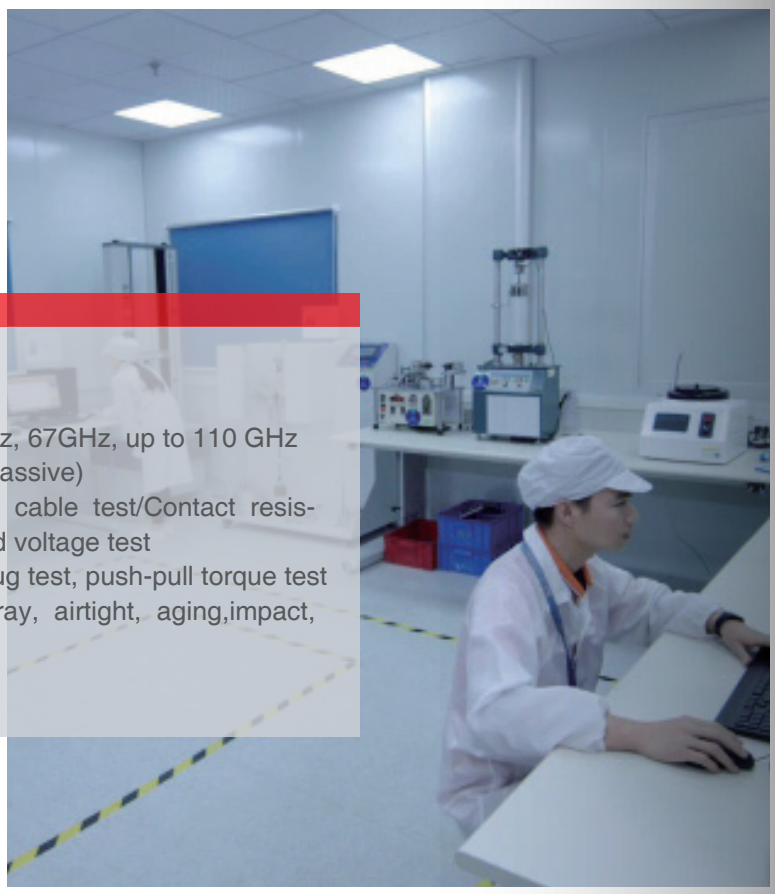
2022

• Became a member of China Electronic Components Association

R&D CAPABILITY

Design Ability

- •RF product frequency up to 110GHz
- •PIM <-125 dBm
- •Product life can be up to 100,000 times
- •Air tightness
- •Precision test requirement
- •SI simulation test board & test fixture design
- •Machining Parts & Mold Design



Software & Test Equipment

- •Keysight network analysis, 26.5GHz, 40 GHz, 67GHz, up to 110 GHz
- •Electrical Test: network analyzer test, 3rd (passive) intermodulation test (PIM), Comprehensive cable test/Contact resistance test/Insulation resistance test/withstand voltage test
- •Mechanical test: Rockwell 2.0, automatic plug test, push-pull torque test
- •Environment and reliability testing,salt spray, airtight, aging,impact, IP67/68 waterproof, Failure cause analysis
- •Ansoft HFSS software

PRODUCTION CAPABILITY

Machining and Assembly Workshop

•The accuracy of STAR CNC from Japan reaches 0.002mm
•Has an automated semi-rigid cable bending machine that can make special 3D shapes
•Possess the welding ability of ultra-micro coaxial and low in termodulation radio frequency cable assemblies
•Heat treatment capacity up to 2500℃ various encapsulation processes
•Special waterproof production capacity, IP68 airtight level

Cable Workshop

•The constant tension winding production line adopts German ZF hysteresis tension controller and Mitsubishi servo motor. I can wind the core wire in the range of 2-15mm, the pitch range is 0.5-20mmm, and the winding head speed is 0-1000 rpm to ensure the cable in the winding process The consistency, reliability, and stability of performance.
•The knitting machine adopts advanced frequency conversion control (technology which has the characteristics of stepless speed regulation, high-speed knitting, fault alarm, low nose, high reliability, high precision and high strength. Ensure that the binding force and shielding properties of the product during processing meet the standard requirements, and there are no undesirable phenomena such as broken wires and loose weaving.

SLK PRODUCTS LIST

RF connector

- Type: 1.0mm, 1.35mm, 1.85mm, 2.92mm, 7/16 mm, BMA, BNC, MCX, MMCX, N, SMA, SMB, SMP, SSMP, TNC, UHF, etc
- Frequency: up to 110GHz

Test cable assembiles

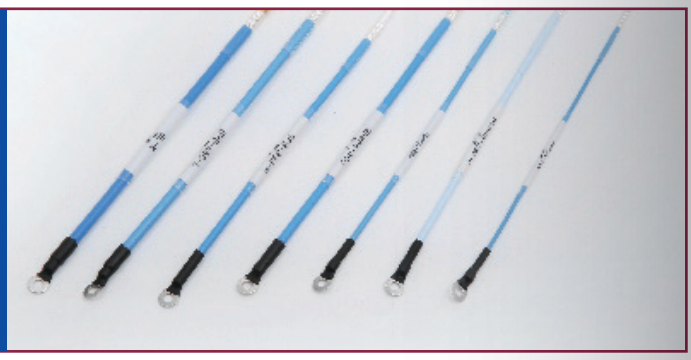
- From durable to VNA high precision series, many kinds of adapters, meet all the requirements of switching test
- Frequency: up to 110GHz
- Application: network analyzer test, RF conductor test, mobile phone production line test

RF test probes

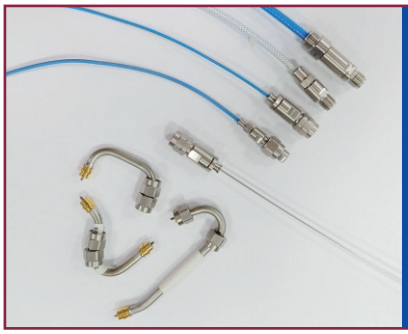
- Multi-channel series
- Customization series
- Reliable quality

RF coaxial cable

- Main products: high frequency cable, amplitude and phase stable cable and test Railway cable etc.
- Frequency: 18GHz, 40GHz, 67GHz to 110GHz
- Support customization

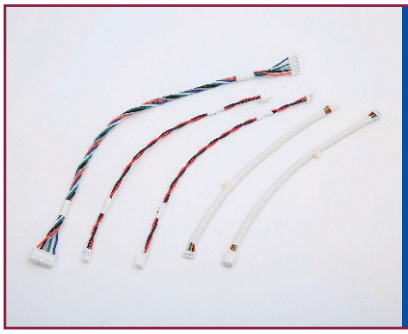


SLK PRODUCTS LIST



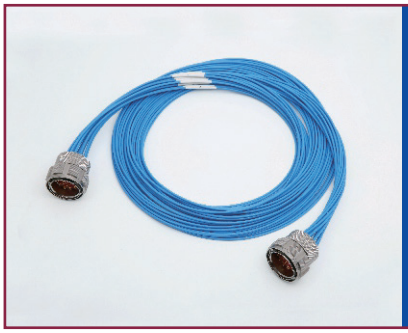
RF Cable assemblies

- Phase match & Stable
- Hybrid & Micowave
- Flexible
- Semi-flex and Semi-rigid
- Corrugated



Custom wiring harness

- Medical
- Semi-conductor
- Aerospace
- Automotive
- Industrial

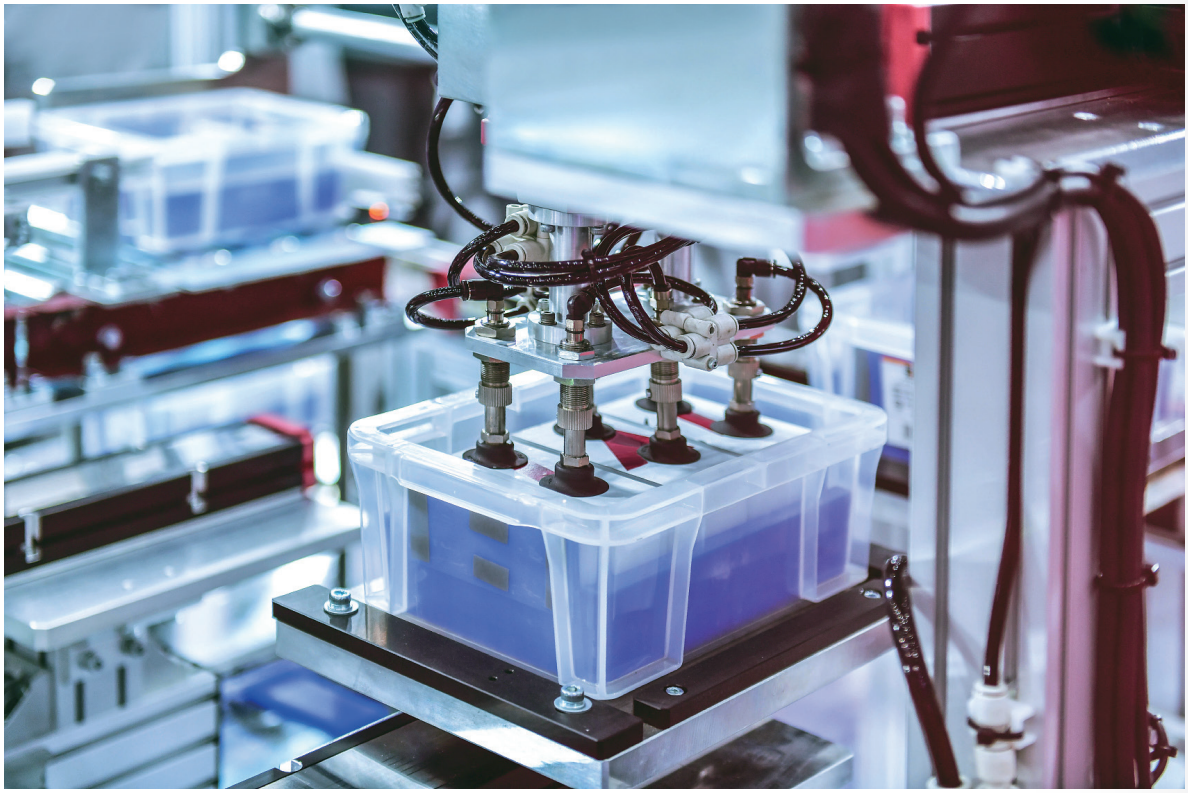


Industrial/military/mixed connector

- MIL -DTL- 38999 series connector
- MS hybrid module combination connector
- Industrial connectors: M12 and M16, etc
- Push and pull self-locking connector

Transient EM Pulse Protection

- DC PASS, DC Block, and TEMP comprehensive protection solutions
- Features: SLK TEMP protection core technology
- Applications: rail transit, radar, aircraft, military, wireless communications etc



APPENDIX

Provide The Most Effective Interconnect Solutions

Laboratory Testing Products And Solutions

Superlink can provide VNA test cable, SPC test cable, SPC adapters, loads, etc. for laboratory test scenarios, and can also provide customers with high-precision OBS test solutions.

Laboratory Testing

Products and solutions

VNA TEST Cable

NNA test cable for network analyzers. NMD3.5mm/2.92mm/2.4mm and NMD1.85mm VNA cable assemblies are available for high cost performance and durability.

SPC Series TEST Cable

Superlink is one of the few vertical integration ability in world , We have connector & cable with intellectual property rights, innovation design, production and processing ability, high precision assembly, precision welding process, to provide customers with high performance, high reliable products.

SPC Series Adapters

Models of SPC series are complete,low VSWR, Stable insertion loss, good consistency.

SPC Series High-performance Load

High-performance load with the frequency up to 67GHz

Products Introduction - VNA Test Cable

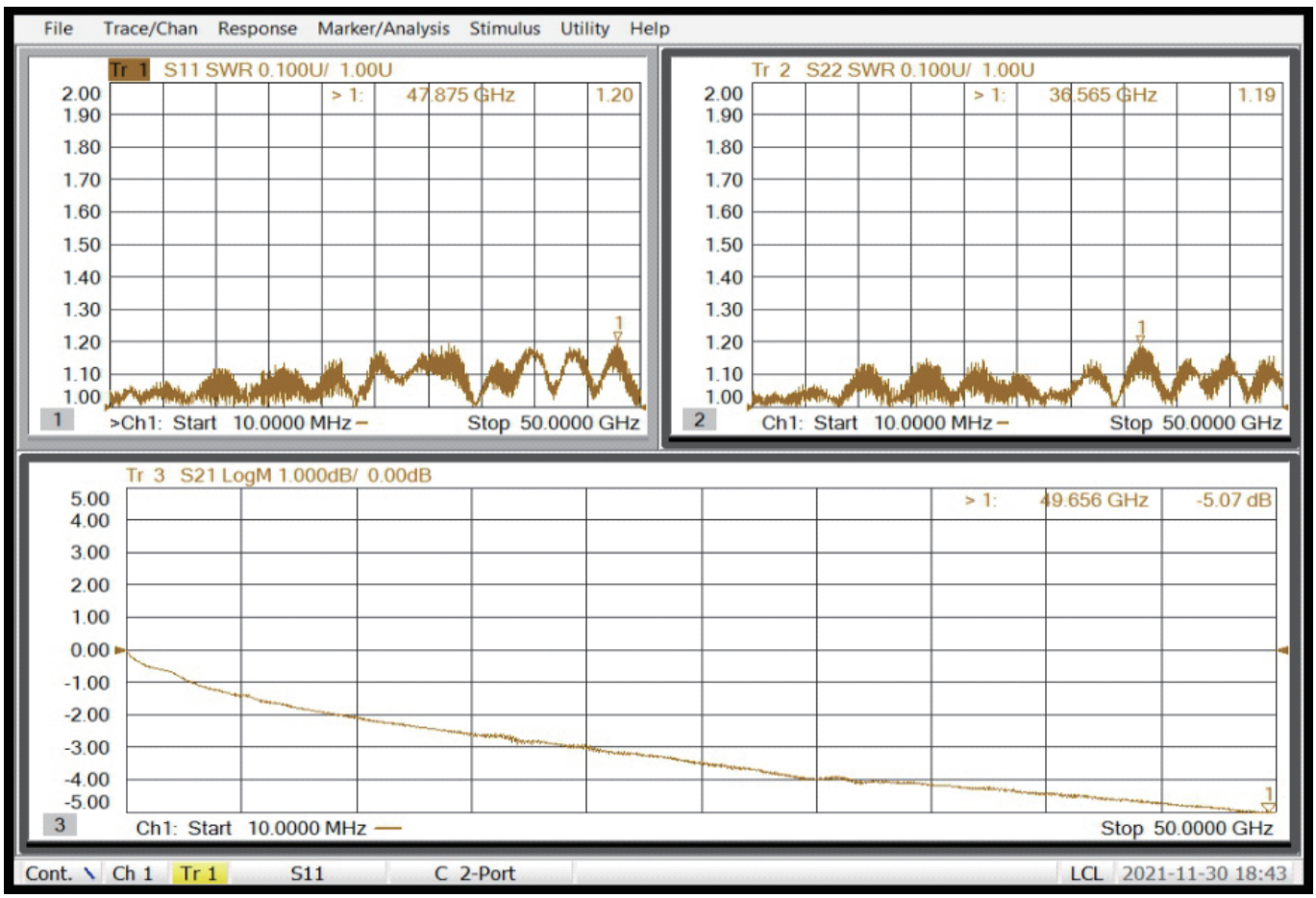
Product Features:

1. Durability:500times;
2. Stable amplitude and phase;
3. The interface is optional, NMD 3.5 mm / 2.92 mm / 2.4 mm / 1.85 mm;
4. VSWR<1.3, frequency up to 67Ghz;

ruggedized port female
1.85mm/2.4mm/2.92mm series

Application Scenarios:

1. Network analyzer test cable;
2. Laboratory tests;
3. Test and measurement in specific scenarios;
4. Instrument calibration test;



VNA series	3.5mm	2.92mm	2.4mm	1.85mm
Working frequency	DC~26.5Ghz	DC~40Ghz	DC~50Ghz	DC~50Ghz
VSWR (Typical/Max)	1.2/1.4	1.2/1.4	1.2/1.4	1.2/1.4
Phase Stability(°)(Typical/Max)	±1/±3	±2/±5	±2/±5	±2/±5
Amplitude Stabilization(dB) (Typical/Max)	±0.02/±0.05	±0.02/±0.05	±0.02/±0.05	±0.02/±0.05
Bending radius(mm)	60mm			
Length(in./mm)	Standard series length is 0.6m, the length can be customized by customers			

Product Introduction- SPC Series Test Cable

The interconnection between the measured parts (mainly passive devices) and the test equipment is applied in the laboratory environment. The general requirements are steady amplitude and steady phase, low VSWR, repetitive operation, durability and other characteristics.

Product models number begin with VA

VA Series(with armor)

Up to 110GHz,
Benchmarking with Phase Flex Series (CX/CN)
The test life is more than 10000 times

Product models number begin with KN/K

KN Series (without armor)
K Series (with armor)

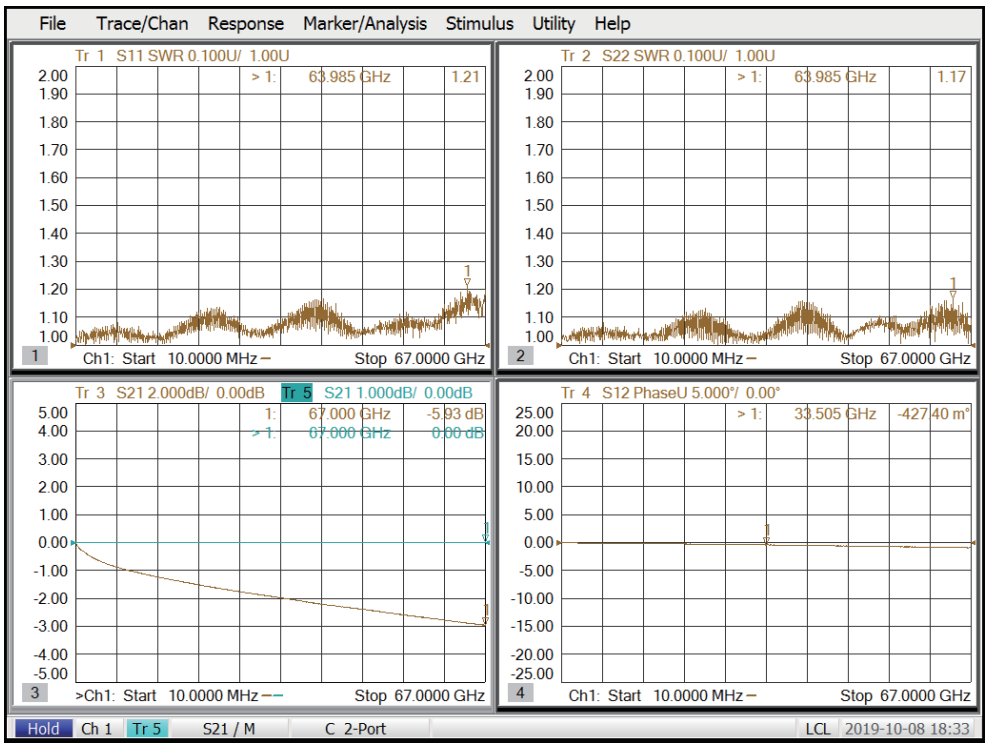
Up to 26.5 GHz,
Benchmark with Silverline Series;
KN test life is more than 10000 times
K series test life is more than 5000 times

Product Introduction- SPC Series Test Cables

VA Products Feature:

1. Up to 110Ghz
2. Good bending fiexibillty
3. Stable amplitude and phase
4. Life up to 10,000 times

VA67 Test Result



Typical Parameters Of K Model

VA(With armor)	VA20	VA40	VA50	VA67	VA110
Maximum operating frequence	26.5GHz	40GHz	50GHz	67GHz	110GHz
Recommended interface	SMA	2.92mm	2.4mm	1.85mm	1.0mm
Armor diameter(mm)	6.0			5.0	4.0
Minimum bending radius,static(mm)	25				17
Minimum bending radius,repeatd(mm)	60				25
VSWR(typical value)		1.2	1.22	1.25	1.30
VSWR(maximum value)	1.12	1.30	1.30	1.35	1.45
Insertion loss,typical value(dB/m)	2.34	2.91	3.28	6.02	13.8
Phase stability,typical value(°)	±2°	±2.5°	±3°	±3°	±5°
Phase stability,maximum value(°)	±5°	±5°	±6°	±5°	±8°
Amplitude stability,typical value (dB)	±0.02	±0.02	±0.03	±0.03	±0.05
Amplitude stability,maximum value (dB)	±0.05dB	±0.05dB	±0.05dB	±0.05dB	±0.10dB
Bending times,(typical value)	1000				

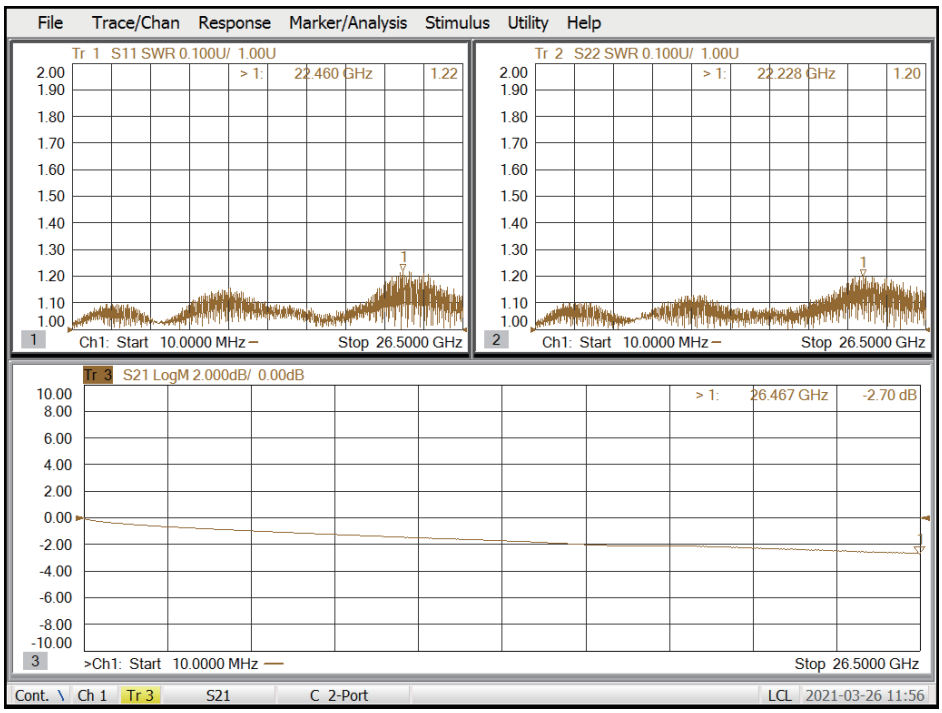
Note:
When bending ± 90° and bending radius is twice the minimum repeated bending radius, the test component can still meet the reliability requirements after bending with cycles specified.

Product Introduction- SPC Series Test Cables

K Model Products Feature:

1. Up to 26.5Ghz
2. Good bending fiexibillty
3. Stable amplitude and phase
4. Life up to 10,000 times

K Models Test Result



Typical Parameters Of K Model

K models(WIth armour)		
PVC armor diameter(mm)	11.0	
PUR armor diameter(mm)	10.2	
SS armor diameter(mm)	10.0	
Mini bending radius,static(mm)	54	
Mini bending radius,repeated(mm)	108	
Recommended interface	SMA / N	SMA / 3.5mm
Max operating frequence	18GHz	26.5HGz
VSWR(typical value)	1.15	1.25
VSWR(max value)	1.20	1.30
Insertion loss,typical value(dB/m)	2.20	2.70
Phase stability,typical value(degree)	±3°	±5°
Phase stability,max value(degree)	±5°	±8°
Amplitude stability,typical value (dB)	±0.05	±0.07
Amplitude stability,max value (dB)	±0.08dB	±0.10dB
Bending times,typical value	10000	

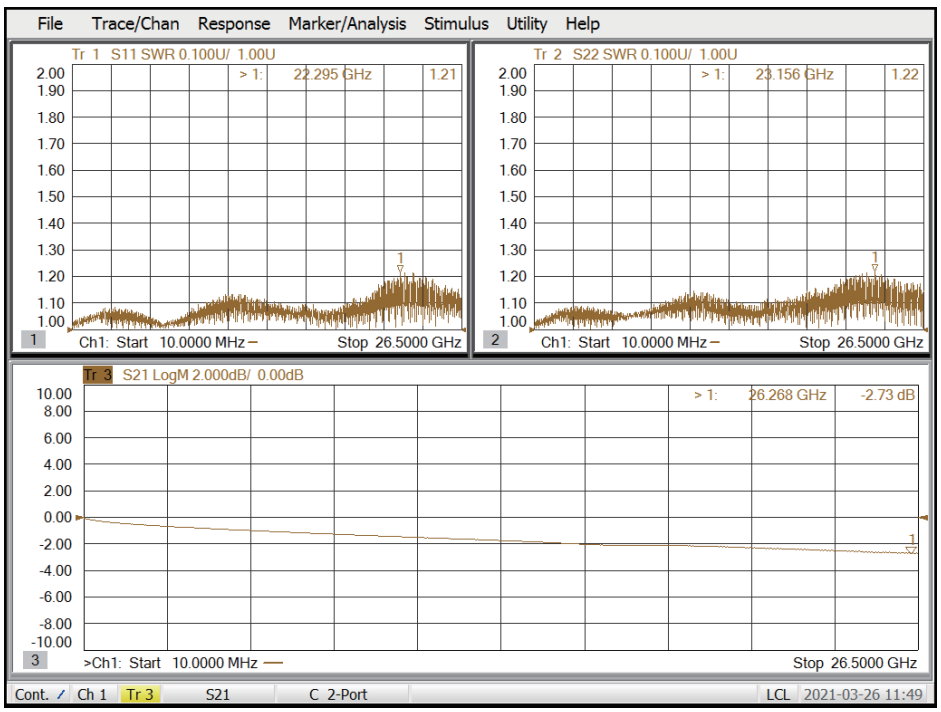
Note:
When bending ± 90° and bending radius is twice the minimum repeated bending radius, the test component can still meet the reliability requirements after bending cycles specified.

Product Introduction- SPC Series Test Cables

KN Model Products feature:

1. Up to 26.5Ghz
2. Good bending fiexibillty
3. Stable amplitude and phase
4. High performance-price ratio

KN Models Test Result



Typical Parameters Of KN Model

KN Models(No armor)		
Diameter(mm)	4.9	
Mini bending radius,static(mm)	20	
Mini bending radius,repeated(mm)	50	
Max operating frequence	18GHz	26.5GHz
Recommended interface	SMA / N	SMA / 3.5mm
VSWR(typical value)	1.15	1.25
VSWR(max value)	1.20	1.30
Insertion loss,typical value(dB/m)	2.20	2.7
Phase stability,typical value(degree)	±3°	±5°
Phase stability,max value(degree)	±5°	±8°
Amplitude stability,typical value (dB)	±0.05	±0.07
Amplitude stability,max value(dB)	±0.08dB	±0.10dB
Bending times,typical value	5000	

Note:
When bending ± 90° and bending radius is twice the minimum repeated bending radius, the test component can still meet the reliability requirements after bending cycles specified.

Products Introduction- SPC Series High-Performance Load

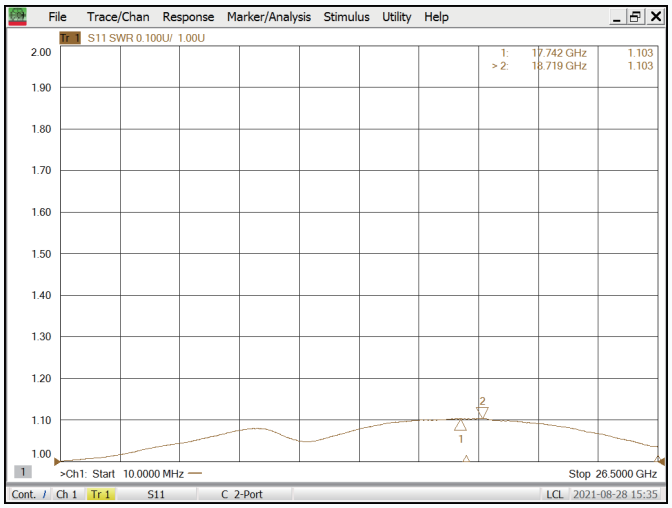
Product Features:

1. Network analyzer test cable.
2.RF port impedance matching, energy absorption.

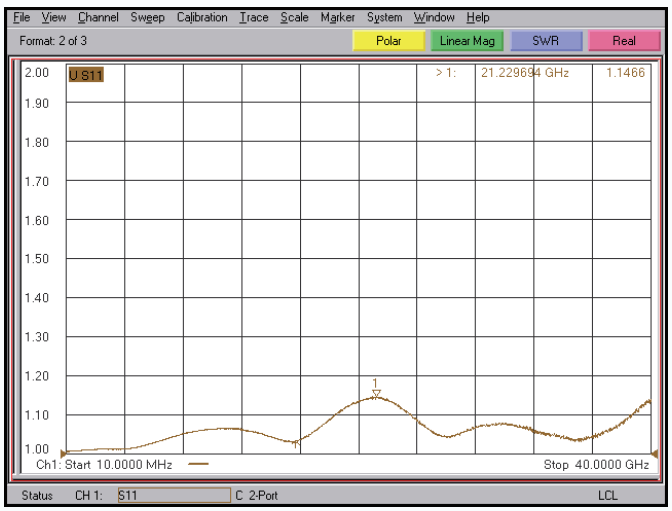
Products Characteristic:

- Maximum frequency 67Ghz
- Compact size, high reliability
- Low VSWR, stable consistency

Products Introduction-SPC High-Performance Load Test results



Frequence: DC-26.5GHz
VSWR: <1.15
Model: 5MAM00D-T00-005



Frequence: DC-40GHz
VSWR: <1.20
Model: 5P9M00D-T00-001

Products Introduction-SPC Series Adapter

Products Application:

1. Life protection of high precision ports such as instruments and equipment.
2. Test port conversion.
3. Test the cable component.

Product Characteristics:

1. Strong and durable, up to more than 3000 cycles.
2. SMA / 3.5 / 2.92 / 2.4 / 1.85 / 1.35 / 1.0 / SMP / SSMP SMPS type is complete,
   include with transformation between series and series.
3. Low VSWR, stable consistency; VSWR parameters as below.

DC to 18 GHz 1.10
18 to 26.5 GHz 1.15
26.6 to 50 GHz 1.20
50 to 67 GHz 1.30
67 to 110 GHz 1.40

Products Introduction-SPC Series RF Adapters

SLK offers a wide range of RF adapters covering 3GHz to 67Ghz and over 200+ types.
50ohm & 75ohm are available.

Interface Type:

1.85mm, 2.4mm, 2.92mm,
3.5mm, 7mm, SMP, SSMP,
ML51, MS-156, MS-180,
.....
Welcome to custom!

Product array

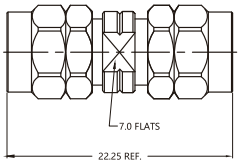
SPC Series Adapter List

		01.85mm		2.4mm		2.92mm		3.5mm		SSMP		SMP		7mm
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
1.85mm	Male	●	●	●	●									
	Female	●	●											
2.4mm	Male	●		●	●	●	●	●			●			
	Female	●		●	●	●	●		●	●				
2.92mm	Male			●	●	●	●	●		●				
	Female			●	●	●	●							
3.5mm	Male			●	●	●	●							●
	Female			●	●	●	●	●						●
SSMP	Male			●		●								
	Female				●									
SMP	Male				●	●								
	Female			●										
1.85mm	Male					●	●							

Products Introduction-SPC Series RF Adapters

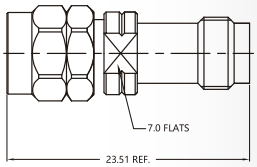
1.85mm-1.85mm

1.85mm-1.85mm



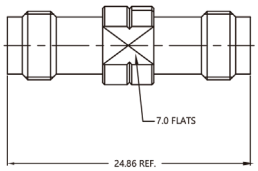
SLK P/N: 5P1M06S-P1M
VSWR: <1.15(DC~36GHz)
<1.25(36~67GHz)

1.85mm-1.85mm



SLK P/N: 5P1M06S-P1F
VSWR: <1.15(DC~36GHz)
<1.25(36~67GHz)

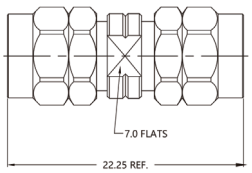
1.85mm-1.85mm



SLK P/N: 5P1F06S-P1F
VSWR: <1.15(DC~36GHz)
<1.25(36~67GHz)

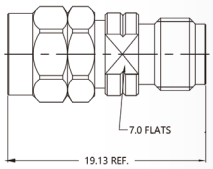
1.85mm-2.4mm

1.85mm-2.4mm



SLK P/N: 5P4M06S-P1M
VSWR: <1.15(DC~40GHz)
<1.2(40~50GHz)

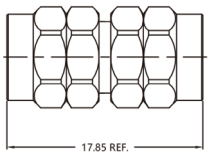
1.85mm-2.4mm



SLK P/N: 5P4M06S-P1F
VSWR: <1.15(DC~40GHz)
<1.2(40~50GHz)

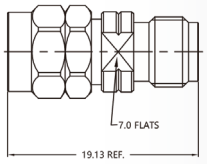
2.4mm-2.4mm

2.4mm-2.4mm



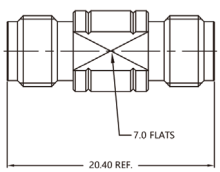
SLK P/N: 5P4M06S-P4M -002
VSWR: <1.15(DC~40GHz)
<1.2(40~50GHz)

2.4mm-2.4mm



SLK P/N: 5P4F06S-P4M -001
VSWR: <1.15(DC~40GHz)
<1.2(40~50GHz)

2.4mm-2.4mm

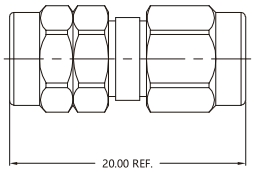


SLK P/N: 5P4F06S-P4F -003
VSWR: <1.15(DC~40GHz)
<1.2(40~50GHz)

Products Introduction-SPC Series RF Adapters

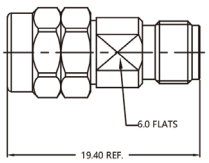
2.4mm-2.92mm

2.4mm-2.92mm



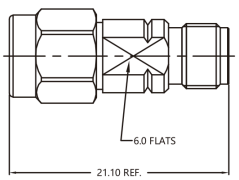
SLK P/N: 5P4M06S-P9M -001
VSWR: <1.15(DC~40GHz)

2.4mm-2.92mm



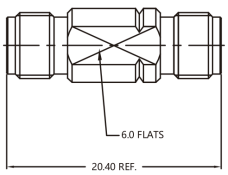
SLK P/N: 5P4M06S-P9F -003
VSWR: <1.15(DC~40GHz)

2.4mm-2.92mm



SLK P/N: 5P4F06S-P9M -004
VSWR: <1.15(DC~40GHz)

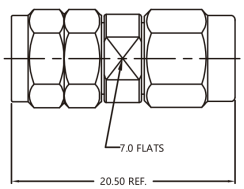
2.4mm-2.92mm



SLK P/N: 5P4F06S-P9F -002
VSWR: <1.15(DC~40GHz)

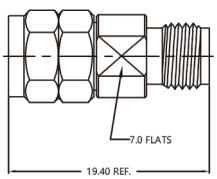
2.4mm-3.5mm

2.4mm-3.5mm



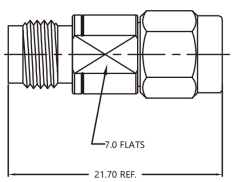
SLK P/N: 5P4M06S-P3M
VSWR: <1.15(DC~40GHz)

2.4mm-3.5mm



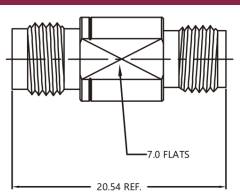
SLK P/N: 5P4M06S-P3F-003
VSWR: <1.15(DC~40GHz)

2.4mm-3.5mm



SLK P/N: 5P4F06S-P3M
VSWR: <1.15(DC~40GHz)

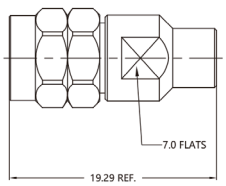
2.4mm-3.5mm



SLK P/N: 5P4F06S-P3F
VSWR: <1.15(DC~40GHz)

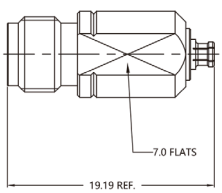
2.4mm-SSMP

2.4mm-SSMP



SLK P/N: 5MPM06S-P4M
VSWR: <1.15(DC~40GHz)

4mm-SSMP

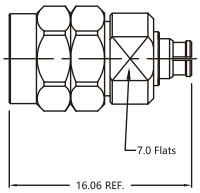


SLK P/N: 5MPF06S-P4F
VSWR: <1.15(DC~40GHz)

Products Introduction-SPC Series RF Adapters

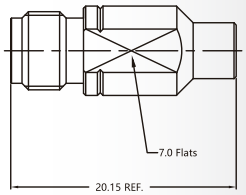
2.4mm-SMP

1.85mm-1.85mm



SLK P/N: 5P4M06S-SPF
VSWR: <1.2(DC~40GHz)

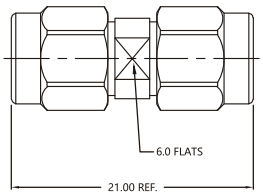
1.85mm-1.85mm



SLK P/N: 5P4F06S-SPM
VSWR: <1.2(DC~40GHz)

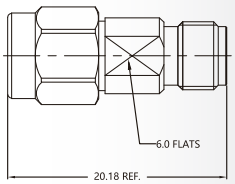
2.92mm-2.92mm

1.85mm-2.4mm



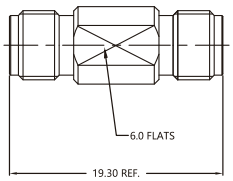
SLK P/N: 5P9M06S-P9M-005
VSWR: <1.15(DC~40GHz)

1.85mm-2.4mm



SLK P/N: 5P9F06S-P9M
VSWR: <1.15(DC~40GHz)

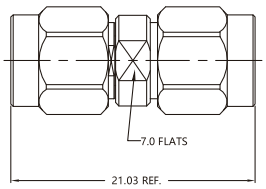
1.85mm-2.4mm



SLK P/N: 5P9F06S-P9F-005
VSWR: <1.15(DC~40GHz)

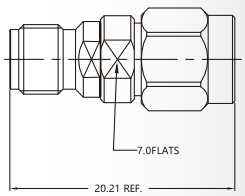
2.92mm-3.5mm

2.4mm-2.4mm



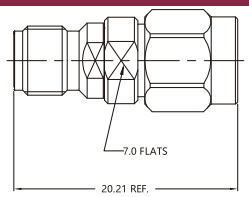
SLK P/N: 5P3M06S-P9M-003
VSWR: <1.15(DC~26.5GHz)

2.4mm-2.4mm



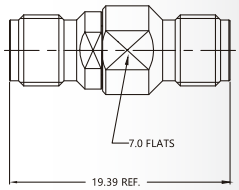
SLK P/N: 5P3M06S-P9F-003
VSWR: <1.15(DC~26.5GHz)

2.4mm-2.4mm



SLK P/N: 5P3F06S-P9M-002
VSWR: <1.15(DC~26.5GHz)

2.4mm-2.4mm

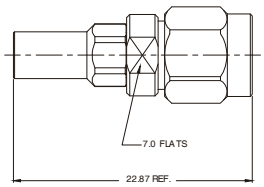


SLK P/N: 5P3F06S-P9F-003
VSWR: <1.15(DC~26.5GHz)

Products Introduction-SPC Series RF Adapters

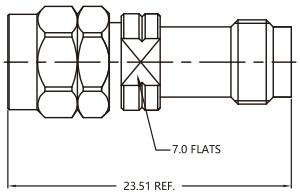
2.92mm-SMP

2.92mm-SMP



SLK P/N: 5P9M06S-SPM-005
VSWR: <1.2(DC~40GHz)

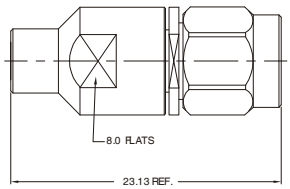
2.92mm-SMP



SLK P/N: 5P4M06S-P9F -003
VSWR: <1.15(DC~40GHz)

2.92mm-SSMP

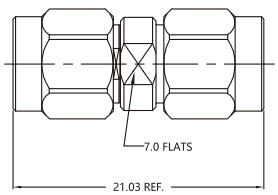
2.92mm-SSMP



SLK P/N: 5P9M06S-MPM
VSWR: <1.2(DC~40GHz)

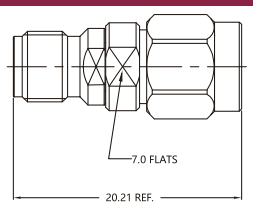
3.5mm-3.5mm

3.5mm-3.5mm



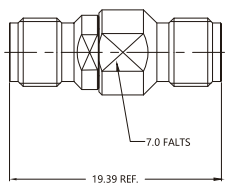
SLK P/N: 5P3M06S-P3M -009
VSWR: <1.15(DC~26.5GHz)

3.5mm-3.5mm



SLK P/N: 5P3F06S-P3M-006
VSWR: <1.15(DC~26.5GHz)

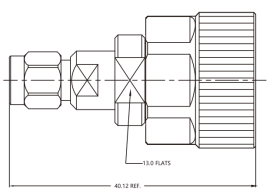
3.5mm-3.5mm



SLK P/N: 5P3F06S-P3F-007
VSWR: <1.15(DC~26.5GHz)

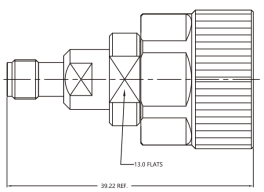
3.5mm-7mm

3.5mm-7mm



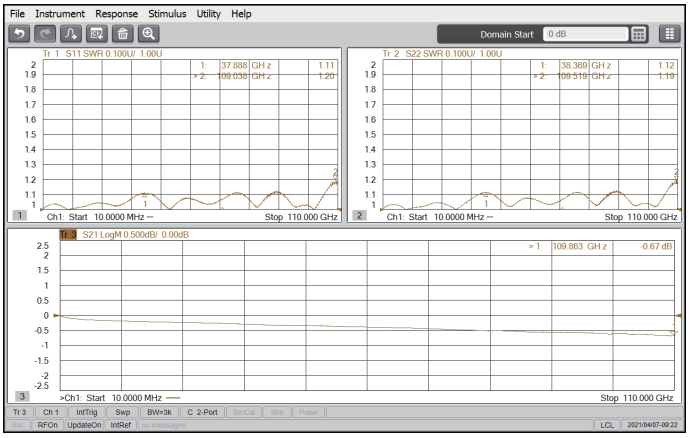
SLK P/N: 5P7M06S-P3M
VSWR: <1.15(DC~18GHz)

3.5mm-7mm

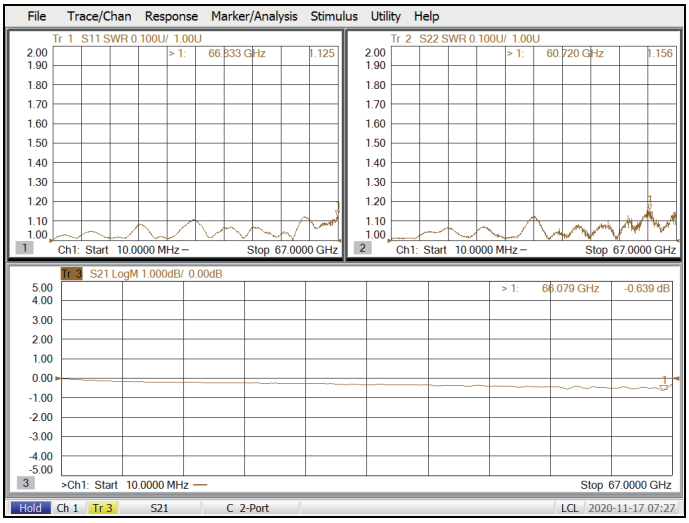


SLK P/N: 5P7M06S-P3F
VSWR: <1.15(DC~18GHz)

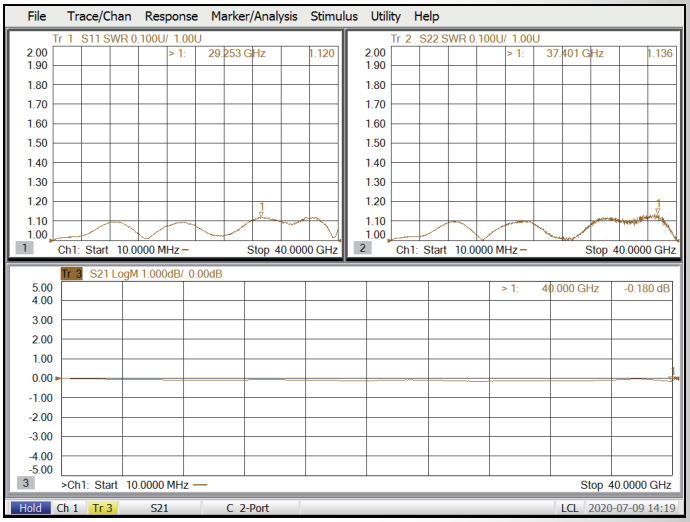
Products Introduction-SPC Series Adapter Test results



1.85mm adapter typical S parameter



1.0mm adapter typical S parameter



2.92mm adapter typical S parameter

Shenzhen Superlink
Technology Co.,Ltd.