



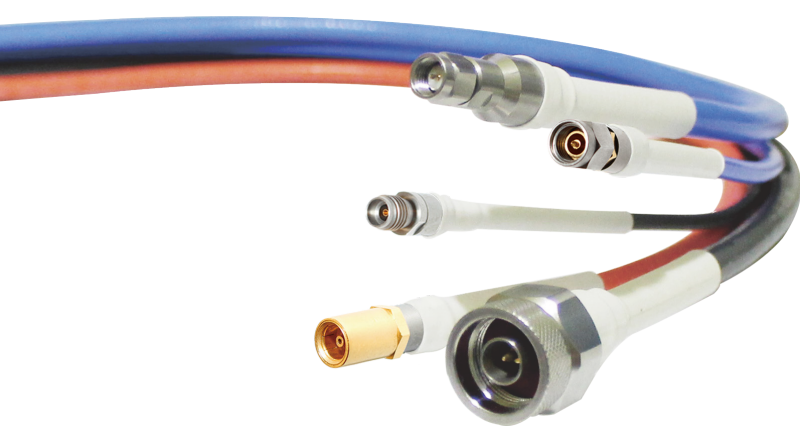
High performance cable components

Shenzhen ZHIHE Technology Co., Ltd

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High performance coaxial cable components

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Ultra flexible cable components



- Be applied to:
 - Mechanical scanning radar,
 - frequent swinging and bending of the turntable,
 - high temperature and vacuum environment
 - Small space wiring
 - ...

High temperature ultra flexible

working temperature: -55~240°
Cable color: Orange

serial number	frequency	outer diameter	length	Loss	standing wave	Connector selection	Armor selection
1	40GHz	3.8mm	1m	<3.7dB	<1.35	2.4\2.92\3.5\SMA\	PTFE\PUR
2	26.5GHz	5.2mm	1m	<2.1dB	<1.30	SMA\N\TNC\...	PTFE\PUR
3	18GHz	7.6mm	1m	<1.2dB	<1.25	SMA\N\TNC\SC\L27\L29\...	PUR

Stable phase ultra flexible

working temperature: -55~85°C
Cable color: dark blue, lake green

serial number	frequency	outer diameter	length	Loss	standing wave	Connector selection	Armor selection
4	50GHz	2.5mm	1m	<6.8dB	<1.35	2.4\2.92\3.5\SMP\SSMP\SMA\...	PTFE\PUR
5	40GHz	3.6mm	1m	<4.5dB	<1.30	2.4\2.92\3.5\SMA\N\...	PTFE\PUR
6	26.5GHz	5.0mm	1m	<3.0dB	<1.25	SMA\N\...	PUR
7	18GHz	8.0mm	1m	<1.4dB	<1.25	SMA\N\...	PUR

Economical ultra flexible

working temperature: -55~85°
Cable color: Black

serial number	frequency	outer diameter	length	Loss	standing wave	Connector selection	Armor selection
8	26.5GHz	2.5mm	1m	<4.6dB	<1.30	3.5\SMA\N\TNC\...	PTFE\PUR
9	18GHz	4.0mm	1m	<2.8dB	<1.25	3.5\SMA\N\TNC\...	PTFE\PUR

Low loss stable phase cable components

- Be applied to:

Phased array radar, warning radar,
synthetic aperture radar, fire
control radar, unmanned driving
radar, quantum communication
Optoelectronic error measurement,
5G, 6G...

Working temperature: -55~165°C



Low loss

serial number	frequency	outer diameter	length	Loss	standing wave	Connector selection	Armor selection
10	110GHz	1.6mm	1m	<16.3dB	<1.50	1.0mm\1.85mm\...	PTFE
11	67GHz	2.2mm	1m	<7.0dB	<1.35	1.85\2.4\2.92\SMA\N\SMP\SSMP\...	PTFE
12	50GHz	3.6mm	1m	<4.0dB	<1.30	2.4\2.92\3.5\SMA\N\...	PTFE
13	40GHz	3.6mm	1m	<2.8dB	<1.25	2.4\2.92\3.5\SMA\SSMA\N\...	PTFE
14	26.5GHz	5.2mm	1m	<1.6dB	<1.25	2.4\2.92\3.5\SMA\N\TNC\...	PTFE\PUR
15	18GHz	7.8mm	1m	<1.0dB	<1.20	SMA\N\TNC\SC\L27\L29\...	PTFE\PUR

Stability

frequency	Mechanical phase	-40~85 °C	
		Temperature phase	amplitude
110GHz	±20°	800ppm	<±0.20dB
67GHz	±10°	800ppm	<±0.15dB
50GHz	±8°	1100ppm	<±0.10dB
40GHz	±8°	500ppm	<±0.10dB
26.5GHz	±5°	500ppm	<±0.05dB
18GHz	±3°	500ppm	<±0.05dB

PTFE armor

Armor outer diameter: 3.9~7.7mm



PUR armor

Armor outer diameter: 6.0~16mm



Highly shielded cable components



- Be applied to:
Dense wiring environment in space,
microwave darkroom, anti-interference...

Working temperature: -55~165 °C

Highly shielded

serial number	frequency	Shielding efficiency	outer diameter	length	Loss	standing wave	Connector selection	Armor selection
16	26.5GHz	>100dB	4.6mm	1m	<2.4dB	<1.30	3.5\SMA\N\TNC\...	PUR\ stainless steel
17	26.5GHz	>100dB	5.2mm	1m	<2.0dB	<1.30	SMA\N\...	None
18	18GHz	>100dB	6.3mm	1m	<1.4dB	<1.25	3.5\SMA\N\TNC\...	None

PUR armor

Armor outer diameter: 11.0mm



Stainless steel armor

Armor outer diameter: 8.4mm



Economic cable components

- Be applied to:

Optimal selection of chassis cabinet

interconnection and civilian radar

that balances performance and cost

5G, 6G Internet Communication ...

Working temperature: -55~125 ℃



Low loss economic type

serial number	frequency	outer diameter	length	Loss	standing wave	Connector selection	Armor selection
19	26.5GHz	2.6mm	1m	<4.2dB	<1.30	2.92\3.5\SMP\SMA\N\TNC\...	-
20	18GHz	3.5mm	1m	<2.1dB	<1.25	3.5\SMA\N\TNC\...	-
21	18GHz	5.2mm	1m	<1.5dB	<1.25	3.5\SMA\N\TNC\...	-
22	13.5GHz	7.8mm	1m	<1.0dB	<1.25	SMA\N\TNC\...	-

Ordinary economy type

serial number	frequency	outer diameter	length	Loss	standing wave	Connector selection	Armor selection
23	40GHz	2.8mm	1m	<6.1dB	<1.3	2.92\3.5\SMP\SMA\N\TNC\...	-
24	26.5GHz	4.0mm	1m	<3.3dB	<1.25	3.5\SMA\N\TNC\...	-

Semi flexible cable components



- Be applied to:
Low cost and easy to manually shape...

Working temperature: -45~125 °C

Semi flexible without protective sheath

serial number	frequency	outer diameter	length	Loss	standing wave	Connector selection	shielded layer
25	18GHz	1.2mm	1m	<6.5dB	<1.3	2.92\SMA\...	Woven silk dipped in tin
26	18GHz	2.2mm	1m	<4.2dB	<1.3	2.92\3.5\SMA\SMP\...	Woven silk dipped in tin
27	18GHz	3.6mm	1m	<2.7dB	<1.3	2.92\3.5\SMA\N\TNC\...	Woven silk dipped in tin

Without protective sheath



Blue protective sheath



Red protective sheath



Yellow protective sheath



Black protective sheath



Semi-steel cable components

- Be applied to:
High shielding, anti-interference,
stable bending forming state,
internal connection of
instruments and meters

Working temperature: -55~250 °C

Shielding efficiency:>165dB



Low loss semi steel

serial number	frequency	outer diameter	length	Loss	standing wave	Connector selection	shielded layer
28	67GHz	2.2mm	1m	<7.0dB	<1.40	1.85\2.4\2.92\3.5\SMA\...	Seamless copper tube
29	40GHz	3.05mm	1m	<2.9dB	<1.30	2.92\SMA\...	Seamless copper tube
30	26.5GHz	3.6mm	1m	<2.1dB	<1.25	2.4\2.92\3.5\SMA\N\TNC\...	Seamless copper tube

Ordinary semi steel

serial number	frequency	outer diameter	length	Loss	standing wave	Connector selection	shielded layer
31	40GHz	1.2mm	1m	<8.7dB	<1.30	1.0\1.85\2.4\2.92\3.5\SMA\...	Seamless copper tube
32	40GHz	2.2mm	1m	<4.4dB	<1.35	2.4\2.92\3.5\SMA\SMP\...	Seamless copper tube
33	26.5GHz	3.6mm	1m	<3.2dB	<1.30	2.4\2.92\3.5\SMA\N\TNC\...	Seamless copper tube

Bare copper-seamless copper tube



Plated ternary alloy- seamless copper tube



IPEX cable components



- Be applied to:
 - Bending joint center feeder
 - handheld terminal internal connection
 - 5G and 6G communication module testing
 - WIFI module connection

Working temperature: -40~85 ° C

Low loss IPEX

serial number	frequency	outer diameter	length	Loss	standing wave	Connector selection	Cable color
34	6GHz	1.13mm	1m	<7.3dB	<1.25	SMA\IPEX-1/2/3/4/5	Black/Grey
35	6GHz	1.37mm	1m	<4.8dB	<1.25	SMA\IPEX-1/2/3/4	Black/Grey

Hirose IPEX



First Seiko IPEX



High power cable components

- Be applied to:

High power transmission,
electronic countermeasure long-
distance transmission,
electromagnetic interference
...

Working temperature: - 55-165 °C



high power

serial number	frequency	average power	outer diameter	length	Loss	standing wave	Connector selection (stainless steel)
36	3GHz	2000W	14.7mm	1m	<1.0dB	<1.25	L27\L29
	6GHz	1200W	14.7mm	1m	<1.5dB	<1.40	L27\L29
37	3GHz	1500W	12.0mm	1m	<1.1dB	<1.25	L27\L29\SC
	6GHz	1000W	12.0mm	1m	<1.7dB	<1.40	L27\L29\SC

Test cable components

- Be applied to:
 - Network analyzer testing
 - Large scale production testing system
 - laboratory and field operation testing
 - RF and microwave testing instruments and meters...



PTFE armored test cable Component length: 1M

serial number	frequency	outer diameter of armor	Loss	standing wave	stability		Connector type	Bending frequency
					Mechanical phase	amplitude		
42	110GHz	3.9mm	<16.8dB	<1.50	<±25°	<±0.25dB	1.0mm	10000
43	67GHz	6.1mm	<7.5dB	<1.40	<±15°	<±0.2dB	1.85mm	20000
44	50GHz	6.1mm	<4.0dB	<1.35	<±8°	<±0.1dB	2.4mm	30000
45	40GHz	6.1mm	<3.6dB	<1.30	<±5°	<±0.05dB	2.92mm	50000
46	26.5GHz	6.1mm	<2.8dB	<1.25	<±4°	<±0.04dB	3.5mm	80000
47	18GHz	6.1mm	<2.3dB	<1.25	<±3°	<±0.03dB	SMA\N\...	100000

PUR armored test cable Component length: 1M

serial number	frequency	outer diameter of armor	Loss	standing wave	stability		Connector type	Bending frequency
					Mechanical phase	amplitude		
48	26.5GHz	10.8mm	<3.2dB	<1.30	<±5°	<±0.15dB	3.5\SMA\N\...	30000
	18GHz	10.8mm	<2.5dB	<1.25	<±4°	<±0.10dB	3.5\SMA\N\...	30000

Test cable without armor Component length: 1M

serial number	frequency	outer diameter of armor	Loss	standing wave	stability		Connector type	Bending frequency
					Mechanical phase	amplitude		
49	26.5GHz	4.85mm	<3.2dB	<1.30	<±5°	<±0.15dB	3.5\SMA\N\...	10000
50	26.5GHz	5.1mm	<2.8dB	<1.30	<±4°	<±0.10dB	3.5\SMA\N\...	30000

- Be applied to:
Protects cables against torsion,
compression, and tension
Can effectively extend the
service life of cables...

PTFE armor



- Smooth to the touch, resistant to pressure, and wear-resistant
- Armor outer diameter: 3.9~7.7mm
- ☞ Bending times 50000 times

PUR armor



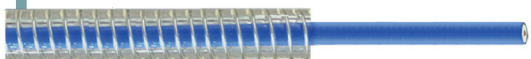
- Super soft, pressure resistant, waterproof
- Armor outer diameter: 6.0~16mm
- ☞ Bending times 50000 times

Stainless steel armor



- Super strong pressure resistance, not waterproof
- Armor outer diameter: 6.0~12mm
- ☞ Bending times 50000 times

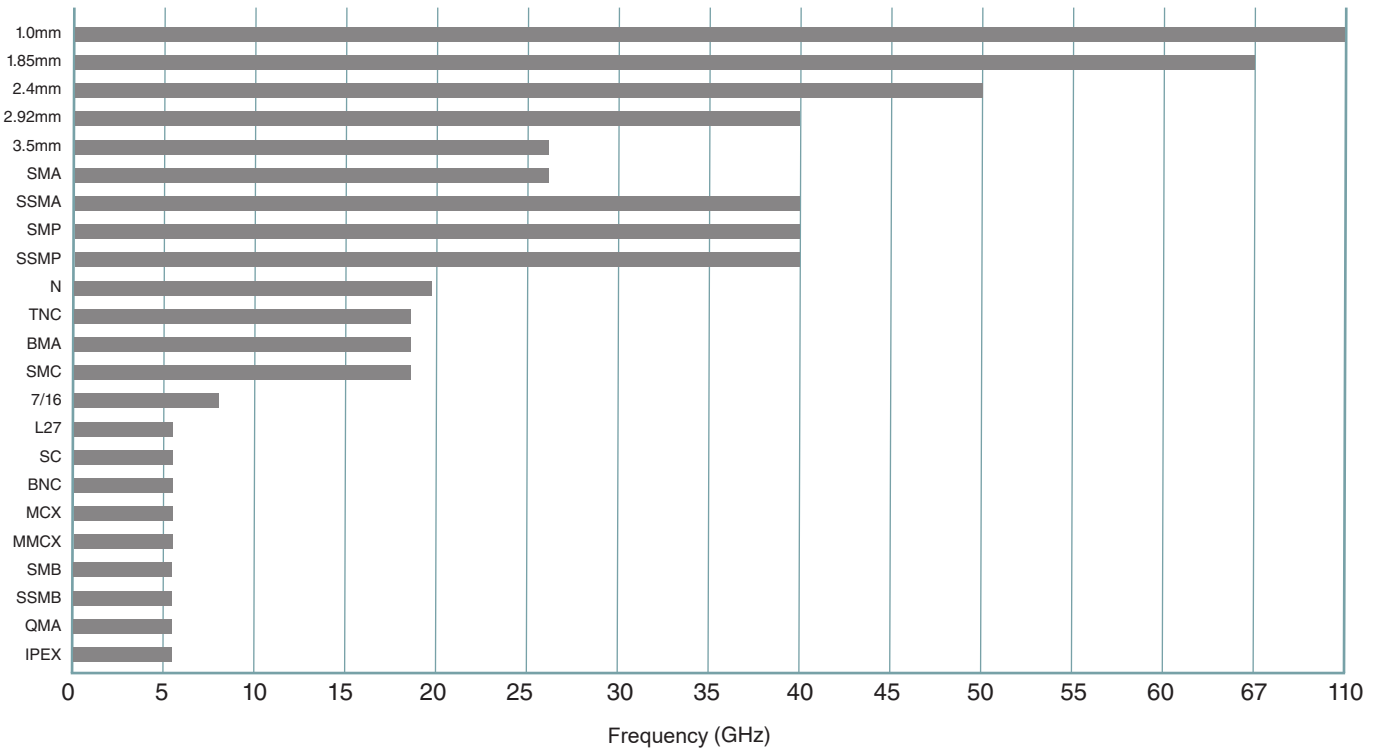
PVC transparent armor



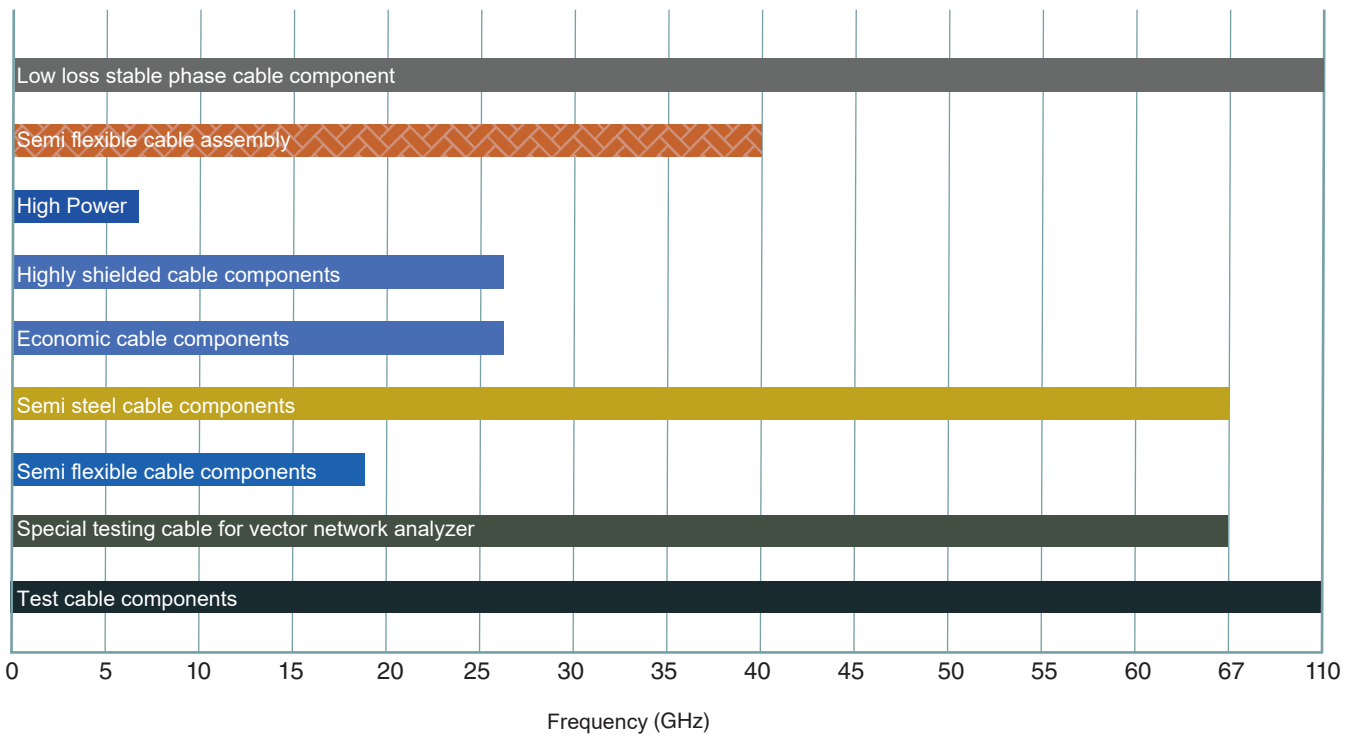
- Low cost, waterproof, and pressure resistant
- Armor outer diameter: 11mm
- ☞ Bending times 30000 times

Common Information Table

Connector usage frequency



Frequency of use of cable components



Common Information Table

Standing wave & return loss

Standing wave ratio (1:1)	Return loss(dB)
1.01	46.06
1.02	40.09
1.03	38.61
1.04	34.15
1.05	32.26
1.06	30.71
1.07	27.42
1.08	28.30
1.09	27.32
1.10	26.44
1.12	24.94
1.14	24.69
1.16	22.61
1.18	21.66
1.20	20.83
1.22	20.08
1.25	19.08

Standing wave ratio (1:1)	Return loss(dB)
1.28	18.22
1.30	17.69
1.33	16.98
1.35	16.54
1.38	15.94
1.40	15.56
1.45	14.72

Band Information Table

frequency range	wave length	Frequency band abbreviation	Metric length representation
3-30MHz	100-10m	HF	Ten meter wave
30-300MHz	10-1m	VHF	Meter wave
30-1000MHz	100-30cm	UHF	Decimeter wave
1-2GHz	30-15cm	L	Decimeter wave
2-4GHz	15-7cm	S	Decimeter wave
4-8GHz	7-4cm	C	Centimeter wave
8-12GHz	4-2.5cm	X	Centimeter wave
12-18GHz	2.5-1.7cm	Ku	Centimeter wave
18-27GHz	1.7-1cm	K	Centimeter wave
27-40GHz	10-7.5mm	Ka	millimeter wave
40-75GHz	7.5-4mm	V	millimeter wave
75-110GHz	4-2.7mm	W	millimeter wave

Common Information Table

Characteristics Table of Cable Insulation Materials

material	dielectric constant	capacitance	Temperature °C
PTFE	2.07	95.9	-75 to +250
Polyethylene	2.3	101.1	-65 to +80
Foam Polyethylene	1.29-1.64	75.72-85.38	-65 to +100
Polyvinylchloride	3.0-8.0	115.47-188.56	-50 to +105
Polyamide	3.5-4.6	124.72-254.73	-60 to +120
silicone Rubber	2.1-3.5	99.61-124.72	-70 to +250
Ethylene Propylene	2.24	99.8	-40 to +105
FEP	2.1	96.6	-70 to +200
Low Density PTFE	1.38-1.73	78.3-87.7	-75 to +250
Foam FEP	1.45	80.3	-75 to +200
Polyimide	3.0-3.5	115.5-124.7	-75 to +300
PFA	2.1	96.6	-75 to +260
ETFE	2.6	107.5	-75 to +150
ECTFE	2.5	105.4	-65 to +150
PVDF	7.8	186.2	-75 to +125

Working temperature of cable outer sheath material

Material Name	Operating Temperature
Polytetrafluoroethylene PTFE	-75°C to +250°C
Perfluoroethylene-propylene FEP	-70°C to +200°C
silicone rubber	-70°C to +200°C
ETFE	-65°C to +150°C
nylon	-40°C to +105°C
PUR	-55°C to +85°C
Polyvinyl chloride PVC	-50°C to +85°C
Polyethylene PE	-65°C to +80°C



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