

A 系列 高性能低损耗稳相柔性射频电缆

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A 系列高性能低损耗稳幅稳相柔性射频电缆

该电缆采用特殊生产工艺及控制要求，使得产品在其工作频率范围内具有优良的电气性能和机械性能指标；

电气性能方面，该系列产品的信号传输速率可达到 83%，这使得电缆信号损耗尽可能降低，温度相位稳定性小于 550PPM；

机械性能方面，特殊的生产工艺，可以使得产品拥有优良的弯曲性能，弯曲半径符合 MIL-STD-202G 标准；

环境适应性方面，采用优良的生产材料，使得产品能够使用温度范围宽（-55℃~165℃）、耐腐蚀、抗开裂、防潮防霉和阻燃（符合 UL9 V-0 标准）、增强性紫外线稳定性等特点。

该设计符合 GJB973、MIL-DTL-17 和 IEC61195-1 规范，适用于恶劣环境应用。



典型应用

测试电缆
相控阵雷达
航天系统、舰船
电子对抗
装备自动化

产品特点

工作频率至 110GHz
超低损耗、稳幅稳相
大功率
耐高温
高屏蔽效率



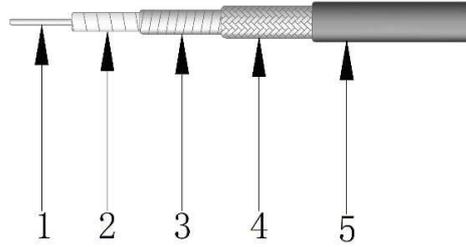
知名品牌射频电缆对比表

| 泰莱微波型号 | 替代国外型号 | 品牌和公司 |
|--------|---------|-------|
| A15 | CXN3657 | GORE |
| A22 | CXN3506 | GORE |
| A40 | CXN3507 | GORE |
| | UFB142 | MCC |
| A48 | CXN3449 | GORE |
| A50 | UFB205A | MCC |
| A75 | CXN3450 | GORE |
| A81 | UFB311A | MCC |

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高性能低损耗稳相柔性射频电缆



1. 内导体——镀银铜
2. 绝缘层——低密度聚四氟乙烯
3. 内屏蔽——镀银铜
4. 外屏蔽——镀银铜
5. 护套——FEP

► 电缆规格

| 型号 | A15 | | A22 | | A40L | | A40 | | A48 | |
|--|-----------|-------|-----------|-------|----------|-------|---------|-------|----------|-------|
| 机械结构指标 | | | | | | | | | | |
| 内导体 | 0.29 | | 0.51 | | 1.02 | | 0.91 | | 1.4 | |
| 绝缘层 | 0.85 | | 1.38 | | 2.80 | | 2.45 | | 3.75 | |
| 内屏蔽层 | 1.01 | | 1.58 | | 3.00 | | 2.66 | | 3.95 | |
| 外屏蔽层 | 1.24 | | 1.96 | | 3.40 | | 3.15 | | 4.43 | |
| 护套 | 1.54 | | 2.20 | | 3.70 | | 3.60 | | 4.80 | |
| 电气性能指标 | | | | | | | | | | |
| 阻抗(Ω) | 50 | | 50 | | 50 | | 50 | | 50 | |
| 传输速率(%) | 80 | | 82 | | 83 | | 83 | | 83 | |
| 屏蔽效率 (dB) | < -90 | | < -90 | | < -90 | | < -90 | | < -90 | |
| 时延 (ns/m) | 4.16 | | 4.06 | | 4.01 | | 4.01 | | 4.01 | |
| 电容 (pF/m) | 80.8 | | 83 | | 79.9 | | 79.8 | | 81.9 | |
| 截止频率(GHz) | 134 | | 83 | | 41 | | 46 | | 31 | |
| 耐压(V,DC) | 200 | | 350 | | 750 | | 650 | | 1000 | |
| 静态弯曲半径 (mm) | 8 | | 11 | | 19 | | 18 | | 24 | |
| 动态弯曲半径 (mm) | 15 | | 22 | | 37 | | 36 | | 48 | |
| 工作温度 ($^{\circ}\text{C}$) | -55~165 | | -55~165 | | -55~165 | | -55~165 | | -55~165 | |
| 衰减 (+25 $^{\circ}\text{C}$ 室温) 与平均功率 (+40 $^{\circ}\text{C}$, 标准大气压, 驻波 1: 1) | | | | | | | | | | |
| 频率 (MHz) | dB/100m | KW | dB/100m | KW | dB/100m | KW | dB/100m | KW | dB/100m | KW |
| 500 | 75.35 | 0.047 | 44.79 | 0.079 | 22.45 | 0.901 | 26.40 | 0.726 | 16.65 | 1.243 |
| 1000 | 107.41 | 0.033 | 63.70 | 0.055 | 31.91 | 0.634 | 37.50 | 0.511 | 23.67 | 0.874 |
| 2000 | 152.51 | 0.023 | 90.80 | 0.039 | 45.45 | 0.445 | 53.36 | 0.359 | 33.73 | 0.613 |
| 4000 | 216.90 | 0.016 | 129.85 | 0.027 | 64.93 | 0.312 | 76.10 | 0.252 | 48.22 | 0.429 |
| 6000 | 266.80 | 0.013 | 160.37 | 0.022 | 80.14 | 0.253 | 93.81 | 0.204 | 59.54 | 0.348 |
| 8000 | 309.20 | 0.012 | 186.49 | 0.019 | 93.13 | 0.217 | 108.91 | 0.157 | 69.22 | 0.299 |
| 12000 | 380.99 | 0.009 | 231.09 | 0.015 | 115.28 | 0.176 | 134.60 | 0.142 | 85.75 | 0.241 |
| 16000 | 442.17 | 0.008 | 269.46 | 0.013 | 134.30 | 0.151 | 156.60 | 0.122 | 99.96 | 0.207 |
| 18000 | 470.07 | 0.008 | 287.06 | 0.012 | 143.02 | 0.141 | 166.67 | 0.115 | 106.48 | 0.194 |
| 20000 | 496.57 | 0.007 | 303.84 | 0.012 | 151.33 | 0.134 | 176.25 | 0.109 | 112.69 | 0.184 |
| 26500 | 575.23 | 0.006 | 353.99 | 0.010 | 176.12 | 0.115 | 204.79 | 0.094 | 131.24 | 0.158 |
| 40000 | 714.50 | 0.005 | 443.99 | 0.008 | 220.51 | 0.092 | 255.69 | 0.075 | | |
| 50000 | 804.35 | 0.004 | 502.81 | 0.007 | | | | | | |
| 67000 | 940.64 | 0.004 | 593.22 | 0.006 | | | | | | |
| 110000 | 1230.52 | 0.003 | | | | | | | | |
| K1 | 3.3634 | | 1.9758324 | | 0.991550 | | 1.16847 | | 0.734593 | |
| K2 | 0.0010405 | | 0.001221 | | 0.000555 | | 0.00055 | | 0.00044 | |

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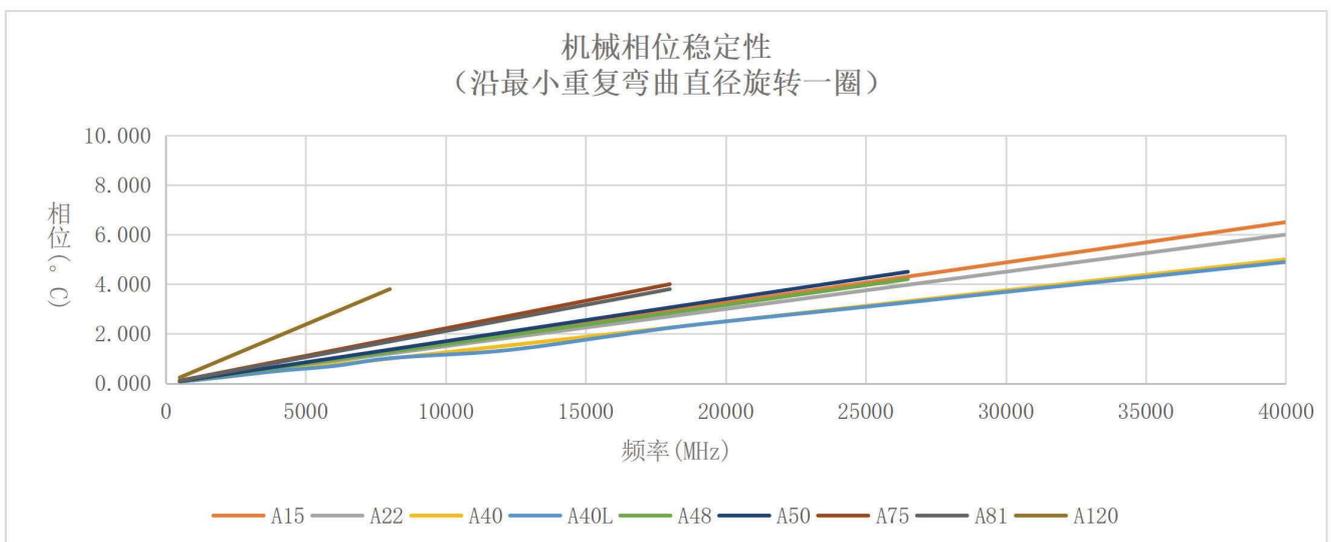
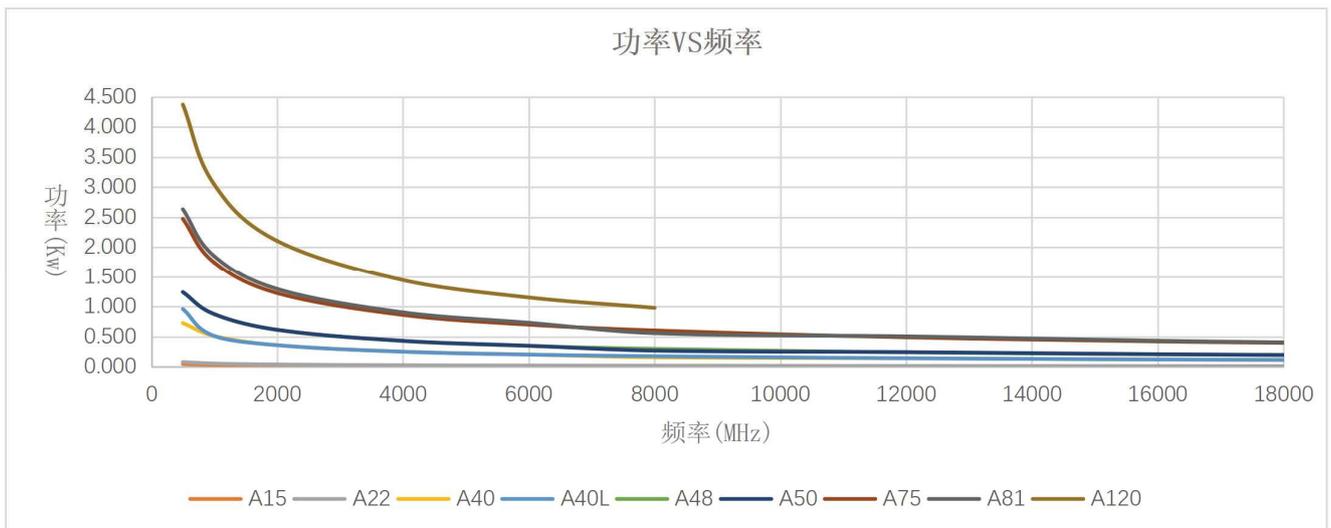
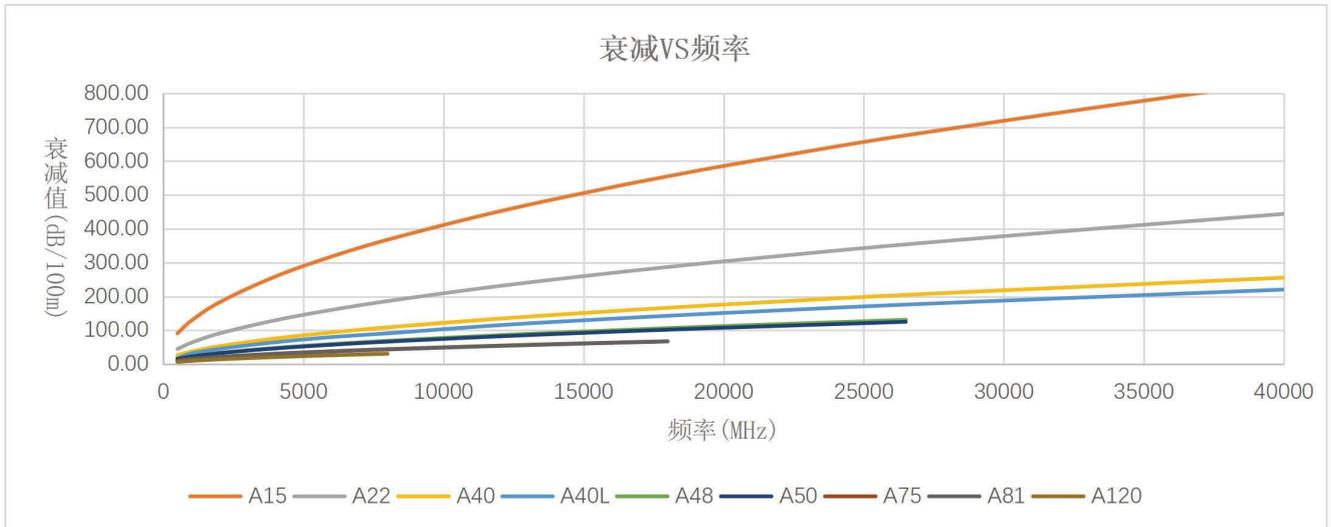
| 型号 | A50 | | A75 | | A81 | | A120 | |
|--|----------|--|----------|--|----------|--|----------|--|
| 机械结构指标 | | | | | | | | |
| 内导体 | 1.45 | | 2.10 | | 2.30 | | 3.80 | |
| 绝缘层 | 4.00 | | 5.75 | | 6.25 | | 10.40 | |
| 内屏蔽层 | 4.20 | | 6.07 | | 6.57 | | 10.72 | |
| 外屏蔽层 | 4.68 | | 6.64 | | 7.15 | | 11.44 | |
| 护套 | 5.20 | | 7.50 | | 7.80 | | 12.00 | |
| 电气性能指标 | | | | | | | | |
| 阻抗(Ω) | 50 | | 50 | | 50 | | 50 | |
| 传输速率(%) | 83 | | 83 | | 83 | | 83 | |
| 屏蔽效率 (dB) | < -90 | | < -90 | | < -90 | | < -90 | |
| 时延 (ns/m) | 4.01 | | 4.01 | | 4.01 | | 4.01 | |
| 电容 (pF/m) | 79.5 | | 80.1 | | 80.1 | | 80.1 | |
| 截止频率(GHz) | 29 | | 20 | | 18 | | 11 | |
| 耐压(V,DC) | 1100 | | 1600 | | 1700 | | 2900 | |
| 静态弯曲半径 (mm) | 26 | | 38 | | 39 | | 60 | |
| 动态弯曲半径 (mm) | 51 | | 75 | | 78 | | 120 | |
| 工作温度 (°C) | -55~165 | | -55~165 | | -55~165 | | -55~165 | |
| 衰减 (+25°C室温) 与平均功率 (+40°C, 标准大气压, 驻波 1: 1) | | | | | | | | |
| 频率 (MHz) | dB/100m | | KW | | dB/100m | | KW | |
| 500 | 16.17 | | 1.243 | | 10.88 | | 2.474 | |
| 1000 | 22.96 | | 0.875 | | 15.43 | | 1.744 | |
| 2000 | 32.66 | | 0.615 | | 21.93 | | 1.227 | |
| 4000 | 46.58 | | 0.431 | | 31.21 | | 0.862 | |
| 6000 | 57.40 | | 0.350 | | 38.42 | | 0.700 | |
| 8000 | 66.66 | | 0.268 | | 44.55 | | 0.604 | |
| 12000 | 82.34 | | 0.244 | | 54.94 | | 0.490 | |
| 16000 | 95.78 | | 0.210 | | 63.81 | | 0.422 | |
| 18000 | 101.92 | | 0.197 | | 67.86 | | 0.397 | |
| 20000 | 107.77 | | 0.186 | | | | | |
| 26500 | 125.20 | | 0.161 | | | | | |
| K1 | 0.715687 | | 0.48249 | | 0.45638 | | 0.298565 | |
| K2 | 0.000328 | | 0.000174 | | 0.000328 | | 0.000535 | |



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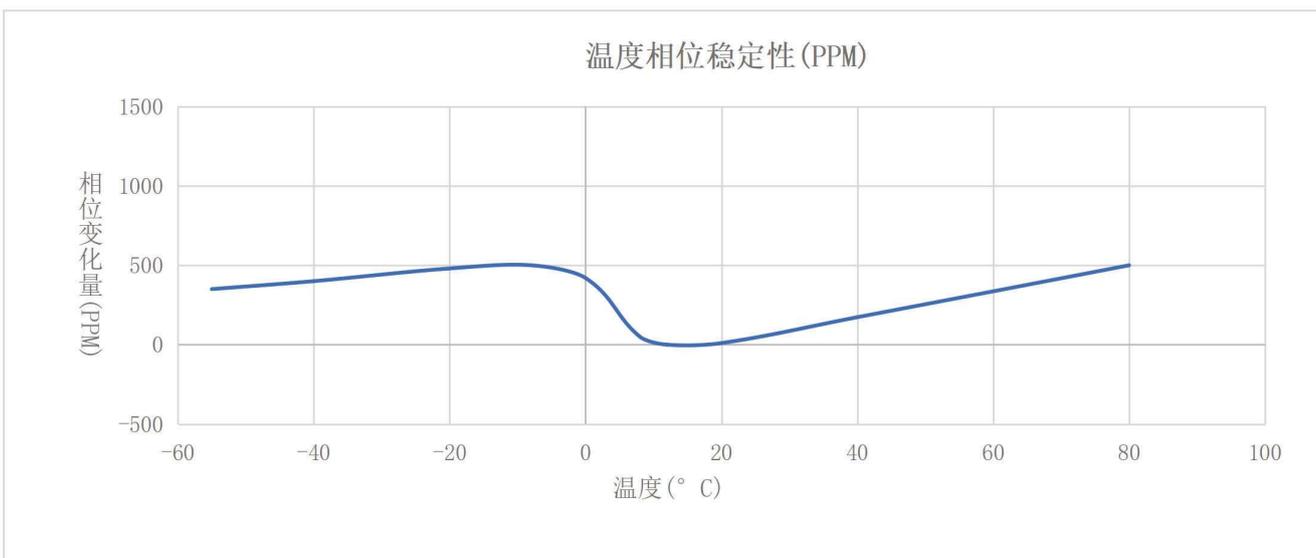
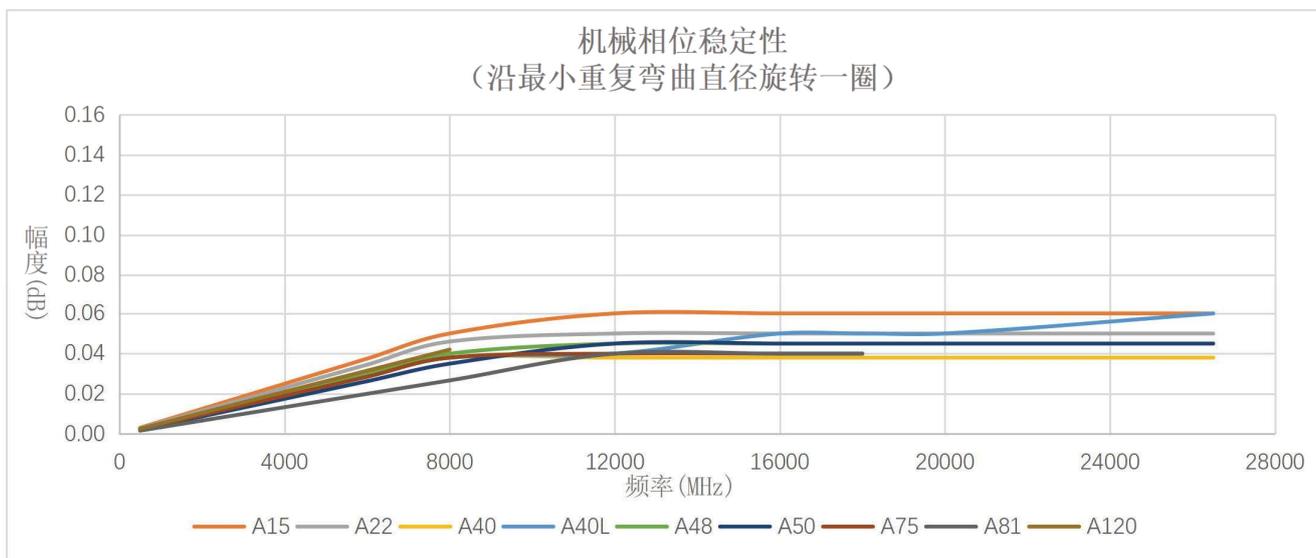
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► 测试数据



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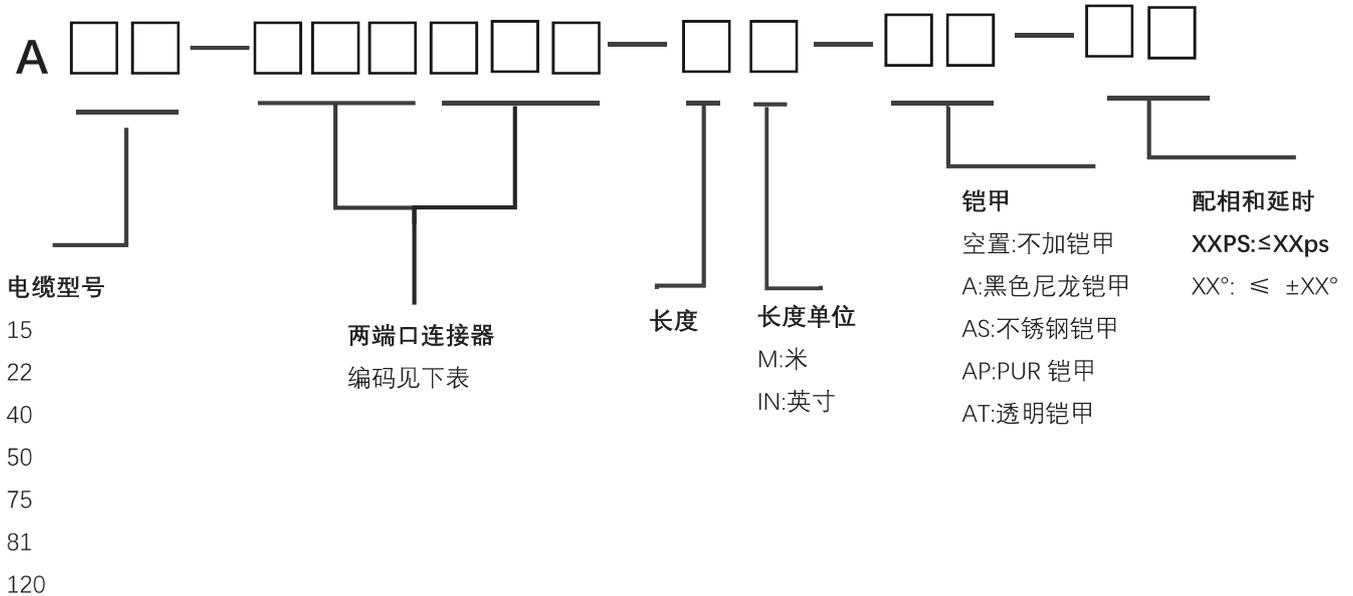
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► 组件选型信息



► 连接器选型参考

| 连接器代码 | 连接器类型 | 工作频率 | A15 | A22 | A40L | A40 | A48 | A50 | A75 | A81 | A120 | 驻波最大 |
|--------|-----------------------|-----------|-----|-----|------|-----|-----|-----|-----|-----|------|------|
| 1.0M | 1.0mm Male | DC-110GHz | ● | | | | | | | | | 1.50 |
| 1.0F | 1.0mm Female | DC-110GHz | ● | | | | | | | | | 1.50 |
| 1.85M | 1.85mm Male | DC-67GHz | ● | ● | | | | | | | | 1.30 |
| 1.85F | 1.85mm Female | DC-67GHz | ● | ● | | | | | | | | 1.30 |
| 2.4M | 2.4mm Male | DC-50GHz | | ● | | ● | | | | | | 1.30 |
| 2.4F | 2.4mm Female | DC-50GHz | | ● | | ● | | | | | | 1.30 |
| 2.92M | 2.92mm Male | DC-40GHz | | ● | ● | ● | | | | | | 1.30 |
| 2.92WM | 2.92 Male Right Angle | DC-40GHz | | ● | ● | ● | | | | | | 1.30 |
| 2.92F | 2.92mm Female | DC-40GHz | | ● | ● | ● | | | | | | 1.30 |
| 3.5M | 3.5mm Male | DC-27GHz | | | | | ● | ● | | | | 1.30 |
| 3.5F | 3.5mm Female | DC-27GHz | | | | | ● | ● | | | | 1.30 |
| SMPF | SMP Female | DC-40GHz | | ● | | | | | | | | 1.30 |
| SSMAM | SSMA Male | DC-40GHz | | ● | | | | | | | | 1.30 |
| SMAM | SMA Male | DC-27GHz | | ● | | ● | ● | ● | ● | ● | | 1.25 |
| SMAWM | SMA Male Right Angle | DC-18GHz | | | | | ● | ● | ● | ● | | 1.25 |
| SMAF | SMA Female | DC-27GHz | | ● | | ● | ● | ● | ● | ● | | 1.25 |
| NM | N Male | DC-18GHz | | | | ● | | | ● | ● | ● | 1.25 |
| NF | N Female | DC-18GHz | | | | ● | | | ● | ● | ● | 1.25 |
| TNCM | TNC Male | DC-12GHz | | | | | | | | ● | | 1.25 |
| SCM | SC Male | DC-6GHz | | | | | | | | ● | | 1.25 |
| DINM | 7/16 Male | DC-6GHZ | | | | | | | | ● | ● | 1.25 |