# VSWR PERFORMANCE

Assembly VSWR (return loss) is influenced by a number of factors including cable construction, assembly length, connector type and configuration (i.e., straight or angled), frequency range, and bend configuration (in semi-rigid assemblies).

| FACTORS | KEY DRIVERS |
|---|---|
| **CABLE CONSTRUCTION** | ~ *Stranded or solid conductor*<br>~ *Solid or tape–wrapped dielectric*<br>~ *Shield construction*<br>~ *Deployed configuration* |
| **ASSEMBLY LENGTH** | ~ *Length > 4 feet* |
| **CONNECTOR TYPE** | ~ *Size mismatch (i.e., small connector/large cable)*<br>~ *Air vs. PTFE interface* |
| **CONNECTOR CONFIGURATION** | ~ *Angled or straight*<br>~ *Blindmate or threaded*<br>~ *High power* |

| VSWR TO RETURN LOSS CONVERSION | |
|---|---|
| **VSWR** | **RETURN LOSS** |
| 1.05:1 | –32.25 |
| 1.10:1 | –26.45 |
| 1.15:1 | –23.12 |
| 1.20:1 | –20.83 |
| 1.25:1 | –19.09 |

| VSWR TO RETURN LOSS CONVERSION | |
|---|---|
| **VSWR** | **RETURN LOSS** |
| 1.30:1 | –17.70 |
| 1.35:1 | –16.54 |
| 1.40:1 | –15.56 |
| 1.45:1 | –14.72 |
| 1.50:1 | –13.98 |

Measured VSWR performance is also impacted by differences in equipment and test methods. As a result, it is not within the scope of this piece to provide VSWR specifications that account for every possible combination of factors.

For convenience sake, the following table may be used as a general guideline:

**TYPICAL VSWR PERFORMANCE**

| FREQUENCY (GHz) | 2 STRAIGHT CONNECTORS | 1 STRAIGHT / 1 ANGLED | 2 ANGLED CONNECTORS |
|---|---|---|---|
| Up to 3 | 1.10:1 | 1.12:1 | 1.15:1 |
| 3 to 18 | 1.15:1 | 1.20:1 | 1.25:1 |
| 18 to 26.5 | 1.25:1 | 1.25:1† | 1.30:1† |
| 26.5 to 50 | 1.30:1 | 1.35:1† | 1.40:1† |

† *Typical data based on factory-formed right angle connector*

*Once specific assembly requirements and test methods are established, it is often possible to guarantee improved VSWR performance. Contact us for more specific information.*