

# A Comparison of Common Transmission Lines and Waveguides

**Q:** *Why don't we simply pick the **best** transmission line, and use it for **all** applications?*

**A:** Every transmission line design has its pros and cons—**none** is the best for all applications, and each is best for **some** applications.

**Table 3.6** provides an accurate list of these pros and cons:

Characteristic	Coax	Waveguide	Stripline	Microstrip
<i>Preferred Mode</i>	TEM	TE <sub>10</sub>	TEM	Quasi-TEM
<i>Other Modes</i>	TM, TE	TM, TE	TM, TE	TM, TE
<i>Dispersion</i>	None	Medium	None	Low
<i>Bandwidth</i>	High	Low	High	High
<i>Loss</i>	Medium	Low	High	High
<i>Power Capacity</i>	Medium	High	Low	Low
<i>Physical Size</i>	Large	Real Large	Medium	Small
<i>Fabrication Ease</i>	Medium	Medium	Easy	Real Easy
<i>Component Integration</i>	Hard	Hard	Fair	Easy