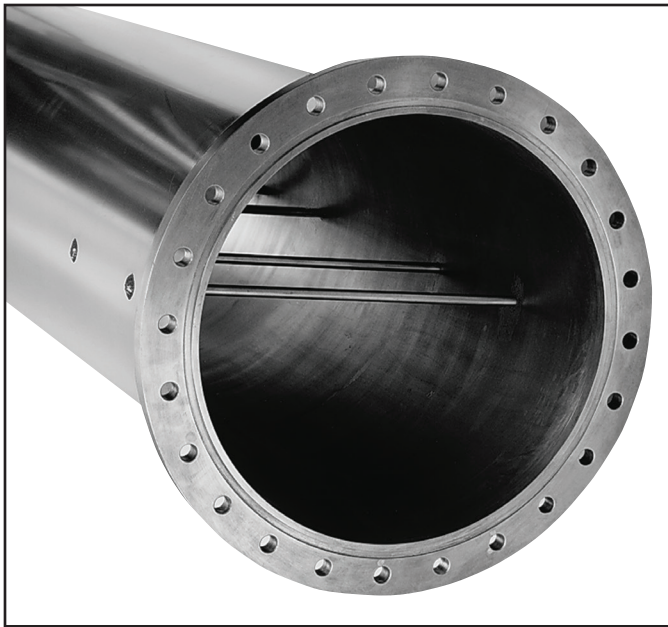


## GUIDELine® GLW1750, 1700, 1500, 1350 Series Circular Waveguide



GUIDELine® circular waveguide is the best choice for long vertical runs.

Circular waveguide offers the highest possible efficiency, with attenuation up to 50% lower than corresponding rectangular waveguide. Power consumption is greatly reduced. It even may permit use of a smaller, less-expensive transmitter. Some broadcasters have overlooked this tremendous benefit because of problems with early designs made by other manufacturers decades ago—but GUIDELine's® novel design eliminates them. Don't confuse GUIDELine® with older circular waveguide that had to be withdrawn from the market due to poor performance.

If needed, television transmitter power levels up to 360 kW can be accommodated. For even higher power applications, contact ERI.

GUIDELine® uses unique cross-polarization canceling pins to eliminate expensive on-site compensation tuning or absorbing loads required for other waveguide systems. An added benefit of these pins is increased rigidity. The flange design is also custom to GUIDELine®.

A flange gasket prevents entry of moisture at the flange junction. The flange facing up contains the gasket groove, and the mating flange is flat for easy installation without risk of pinching the gasket. Waveguide sections use all aluminum construction.

**The most efficient transmission line available for UHF.**

**This is not your father's circular waveguide—GUIDELine Circular Waveguide eliminates cross-polarization through its unique cancelling pins.**

GUIDELine® has substantially lower wind load than equivalent rectangular waveguide, allowing it to be used in towers where rectangular cannot. While it is difficult to generalize, since every site must be analyzed individually, GUIDELine® has less than 80% of the wind load of equivalent rectangular waveguide in every case. In some applications, wind load is only about half that of rectangular! Don't overlook this option—figure wind loads both ways.

The horizontal run is comprised of thick wall rectangular waveguide, allowing a constant pressurization of the system of up to 2 lb/in<sup>2</sup> while permitting the flexibility of routing the waveguide using conventional rectangular waveguide elbows.

### GUIDELine Characteristics

Type No./ Waveguide Size	Length in (mm)	Weight lb (kg)	Wind Load Shear lb (N)
GLW1750	102.86 (2612.4)	95 (43)	480 (2135)
GLW1700	102.85 (2612.4)	87 (39)	440 (1957)
GLW1500	108.11 (2743.2)	75 (34)	397 (1766)
GLW1350	112.00 (2844.8)	69 (31)	371 (1650)

## GUIDELine® *GLW1750, 1700, 1500, 1350 Series* Circular Waveguide

### VSWR Performance

VSWR is 1.08 or better over the channel; optimization to 1.05 or better at visual carrier is usually possible. GUIDELine® does not have band reject spikes associated with coaxial and rectangular waveguide transmission lines because of the extremely small mismatch of the circular flange junction.

### System Planning Information

ERI offers GUIDELine® circular waveguide on a system basis only. Your system will be optimized based on the following information:

- Operating channel(s) (multi-channel operation is available) Waveguide size – GLW1750, GLW1700, GLW1500 or GLW1350
- Length of vertical run in feet or meters
- Length of horizontal run in feet or meters
- Input connection required – WR1800, WR1500, WR1150, 8-3/16" 75-ohm coaxial line, 7-3/16" 75-ohm coaxial line, 6-1/8" 75-ohm coaxial line or 6-1/8" 50-ohm coaxial line
- Antenna input flange – 8-3/16" 75-ohm, 7-3/16" 75-ohm, 6-1/8" 75-ohm, 6-1/8" 50-ohm or waveguide

### Efficiency Determination

Select the attenuation in dB/100 ft from the table to the right. Multiply by the length of the waveguide run to find total attenuation. Calculate efficiency from the following formula:

$$\text{Efficiency in percent} = \frac{100}{10^{(0.35/10)}}$$

where **a** is total waveguide attenuation.

Example:

For channel 30 and 1000 feet of GLW1750,

$$0.035 \times 10 = 0.35 \text{ dB}$$

$$\text{Efficiency in percent} = \frac{100}{10^{(0.35/10)}} = 92.3\%$$

## GUIDELine® GLW1750, 1700, 1500, 1350 Series Circular Waveguide

### GUIDELine Attenuation Ratings

Channel Number	Visual Carrier MHz	Attenuation dB/100 ft
<b>GLW1750</b>		
14	471.25	0.0521
15	477.25	0.0502
16	483.25	0.0484
17	489.25	0.0469
18	495.25	0.0454
19	501.25	0.0441
<b>GLW1700</b>		
20	507.25	0.0545
21	513.25	0.0527
22	519.25	0.0510
23	525.25	0.0496
<b>GLW1750</b>		
24	531.25	0.0391
25	537.25	0.0383
26	543.25	0.0375
27	549.25	0.0368
28	555.25	0.0362
29	561.25	0.0356
30	567.25	0.0350
31	573.25	0.0344
32	579.25	0.0339
33	585.25	0.0334
34	591.25	0.0330
35	597.25	0.0325
36	603.25	0.0321
37	609.25	0.0317
38	615.25	0.0314
39	621.25	0.0310
40	627.25	0.0307
41	633.25	0.0303

### GUIDELine Attenuation Ratings

Channel Number	Visual Carrier MHz	Attenuation dB/100 ft
<b>GLW1500</b>		
39	621.25	0.0490
40	627.25	0.0482
41	633.25	0.0474
42	639.25	0.0466
43	645.25	0.0459
44	651.25	0.0452
45	657.25	0.0445
46	663.25	0.0439
47	669.25	0.0433
48	675.22	0.0428
49	681.25	0.0423
50	687.25	0.0418
51	693.25	0.0413
52	699.25	0.0408
53	705.25	0.0404
54	711.25	0.0399
55	717.25	0.0395
<b>GLW1350</b>		
56	723.25	0.0530
57	729.25	0.0523
58	735.25	0.0516
59	741.25	0.0510
60	747.25	0.0504
61	753.25	0.0498
62	659.25	0.0493
63	765.25	0.0488
64	771.25	0.0483
65	777.25	0.0478
66	783.25	0.0473
67	789.25	0.0469

**Standard Conditions**

For Attenuation, VSWR 1.0, Ambient Temperature 24°C (75°F).

For Average Power, VSWR 1.0, Ambient Temperature 24°C (75°F).

Waveguide Temperature 64°C (147°F).