# 1329Line™ *1329350, 1329450, 1329650, 1329675 Series*

## Rigid Coaxial Line with Aluminum Outer/Copper Inner Conductor

ERI now offers complete aluminum outer/copper inner conductor rigid transmission line systems in 3 1/8 inch, 4 1/16 inch, and 6 1/8 inch (both 50 and 75 ohm) sizes. Not only does the elimination of the copper outer conductor reduce component prices, but the reduced weight decreases the support component complexity, cost, and effort required to install the transmission line system. ERI's field proven bellows expansion compensator accommodates the differential expansion between the inner and outer conductor and vertical and horizontal spring hangers are designed to support the system and compensate for differential expansion between the tower and vertical and horizontal runs.

## Specifications

| Product Series | 1329350 | 1329450 | 1329650 | 1329675 |
|---|---|---|---|---|
| Nominal Line Size, inch | 3 1/8 | 4 1/16 | 6 1/8 | 6 1/8 |
| Impedance, Ohm | 50 ± 0.5 | 50 ± 0.5 | 50 ± 0.5 | 75 ± 0.5 |
| Maximum US Television Channel, (Frequency MHz) | 69 (855) | 69 (855) | 69 (855) | 69 (855) |
| Velocity, % | 99.8 | 99.6 | 99.76 | 99.8 |
| Peak Power, kW | 440 | 710 | 1500 | 1060 |
| Net Weight, lbm/ft (kg/m) | 1.35 (2.01) | 1.90 (2.83) | 3.65 (5.43) | 3.25 (4.84) |
| Outer Conductor, Outer Diameter, inch (cm) | 3.125 (7.94) | 4.062 (10.32) | 6.181 (15.70) | 6.181 (15.70) |
| Outer Conductor, Inner Diameter, inch (cm) | 3.027 (7.94) | 3.935 (9.99) | 5.981 (15.19) | 5.981 (15.19) |
| Inner Conductor, Outer diameter, inch (cm) | 1.315 (3.34) | 1.711 (4.35) | 2.60 (6.60) | 1.711 (4.35) |
| Inner Conductor, Inner Diameter, inch (cm) | 1.231 (3.31) | 1.631 (4.14) | 2.52 (6.40) | 1.631 (4.14) |
| Flange, Outer Diameter, inch (cm) | 5.1875 (13.2) | 6.1875 (15.7) | 8.125 (20.7) | 8.125 (20.7) |
| Bolt Circle, Diameter, inch (cm) | 4.375 (11.11) | 5.375 (13.65) | 7.375 (18.73) | 7.375 (18.73) |
| Number of Bolts | 6 | 8 | 12 | 12 |
| Bolt Size, inch | 3/8 | 3/8 | 3/8 | 3/8 |

## Section Length Recommendations

| Type Number-Detail | Section Length, ft (m) | TV Channels | FM Radio Frequencies |
|---|---|---|---|
| 1329350-1, 1329450-1, 1329650-1, 1329675-1 | 20.00 (6.0960) | 2, 3, 5, 6, 7, 8, 9, 11, 12, 14, 15, 18, 19, 22, 23, 27, 31, 32, 35, 36, 39, 40, 43, 44, 47, 48, 51, 52, 55, 56, 60, 64, 68 | 88.1-95.9, 100.3-107.9 |
| 1329350-2, 1329450-2, 1329650-2, 1329675-2 | 19.75 (6.0198) | 16, 20, 24, 28, 33, 37, 41, 45, 49, 53, 57, 61, 62, 65, 66, 69 | 96.1-98.3 |
| 1329350-3, 1329450-3, 1329650-3, 1329675-3 | 19.50 (5.9436) | 4, 10, 13, 17, 21, 25, 26, 29, 30, 34, 38, 42, 46, 50, 54, 58, 59, 63, 67 | 98.5-100.1 |
| 1329350-6, 1329450-6, 1329650-6, 1329675-6 | 19.00 (5.7912) | — | 98.5-100.1 |
| 1329350-7, 1329450-7, 1329650-7, 1329675-7 | 18.67 (5.6906) | 7,11 | — |
| 1329350-11, 1329450-11, 1329650-11, 1329675-11 | 17.50 (5.3340) | — | 88.1-107.9 |

Note: Television channels listed are preferred; others may also be acceptable. Contact ERI for more information. Specifications subject to change without notice.

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## Rigid Coaxial Line with Aluminum Outer/Copper Inner Conductor

### 1329350 — 3 1/8 inch 50 Ohm 1329Line™

| Channel | Frequency, MHz | Attenuation | | Power | |
|---|---|---|---|---|---|
| | | dB/100 ft | dB/100 m | Average, kW | Peak, kW |
| 2 | 55.25 | 0.072 | 0.235 | 66.7 | 95.3 |
| 4 | 67.25 | 0.079 | 0.259 | 60.4 | 86.3 |
| 5 | 77.25 | 0.085 | 0.278 | 56.4 | 80.5 |
| 6 | 83.25 | 0.088 | 0.289 | 54.3 | 77.5 |
| — | 88.10 | 0.091 | 0.297 | 52.8 | — |
| — | 98.10 | 0.096 | 0.314 | 50.0 | — |
| — | 107.90 | 0.100 | 0.329 | 47.6 | — |
| 7 | 175.25 | 0.128 | 0.420 | 37.3 | 53.3 |
| 13 | 211.25 | 0.141 | 0.461 | 34.0 | 48.5 |
| 14 | 471.25 | 0.211 | 0.692 | 22.7 | 32.4 |
| 51 | 693.25 | 0.256 | 0.841 | 18.6 | 26.6 |
| 69 | 801.25 | 0.276 | 0.906 | 17.3 | 24.7 |

### 1329450 — 4 1/16 inch 50 Ohm 1329Line™

| Channel | Frequency, MHz | Attenuation | | Power | |
|---|---|---|---|---|---|
| | | dB/100 ft | dB/100 m | Average, kW | Peak, kW |
| 2 | 55.25 | 0.055 | 0.181 | 105.4 | 150.6 |
| 4 | 67.25 | 0.061 | 0.199 | 95.5 | 136.4 |
| 5 | 77.25 | 0.065 | 0.214 | 89.0 | 127.2 |
| 6 | 83.25 | 0.068 | 0.222 | 85.7 | 122.5 |
| — | 88.10 | 0.070 | 0.228 | 83.3 | — |
| — | 98.10 | 0.074 | 0.241 | 78.9 | — |
| — | 107.90 | 0.077 | 0.253 | 75.2 | — |
| 7 | 175.25 | 0.100 | 0.329 | 58.8 | 84.0 |
| 13 | 211.25 | 0.108 | 0.356 | 53.5 | 76.4 |
| 14 | 471.25 | 0.163 | 0.535 | 35.5 | 50.5 |
| 51 | 693.25 | 0.199 | 0.652 | 29.2 | 41.7 |
| 69 | 801.25 | 0.214 | 0.703 | 27.1 | 38.7 |

### 1329650 — 6 1/8 inch 50 Ohm 1329Line™

| Channel | Frequency, MHz | Attenuation | | Power | |
|---|---|---|---|---|---|
| | | dB/100 ft | dB/100 m | Average, kW | Peak, kW |
| 2 | 55.25 | 0.036 | 0118 | 233.6 | 333.7 |
| 4 | 67.25 | 0.040 | 0.130 | 211.5 | 302.1 |
| 5 | 77.25 | 0.043 | 0.140 | 197.1 | 281.6 |
| 6 | 83.25 | 0.044 | 0.145 | 189.8 | 271.1 |
| — | 88.10 | 0.046 | 0.150 | 184.4 | — |
| — | 98.10 | 0.048 | 0.158 | 174.6 | — |
| — | 107.90 | 0.051 | 0.166 | 166.3 | — |
| 7 | 175.25 | 0.065 | 0.212 | 129.9 | 185.6 |
| 13 | 211.25 | 0.071 | 0.234 | 118.1 | 168.7 |
| 14 | 471.25 | 0.108 | 0.353 | 78.1 | 111.6 |
| 51 | 693.25 | 0.131 | 0.429 | 64.2 | 91.8 |
| 69 | 801.25 | 0.142 | 0.465 | 59.3 | 84.7 |

### 1329675 — 6 1/8 inch 75 Ohm 1329Line™

| Channel | Frequency, MHz | Attenuation | | Power | |
|---|---|---|---|---|---|
| | | dB/100 ft | dB/100 m | Average, kW | Peak, kW |
| 2 | 55.25 | 0.033 | 0.109 | 201.4 | 287.7 |
| 4 | 67.25 | 0.037 | 0.120 | 182.4 | 260.5 |
| 5 | 77.25 | 0.039 | 0.129 | 170.0 | 242.9 |
| 6 | 83.25 | 0.041 | 0.134 | 163.7 | 233.9 |
| — | 88.10 | 0.042 | 0.138 | 159.1 | — |
| — | 98.10 | 0.044 | 0.146 | 150.7 | — |
| — | 107.90 | 0.047 | 0.153 | 143.6 | — |
| 7 | 175.25 | 0.060 | 0.195 | 112.3 | 160.4 |
| 13 | 211.25 | 0.066 | 0.215 | 102.1 | 145.9 |
| 14 | 471.25 | 0.099 | 0.324 | 67.8 | 96.2 |
| 51 | 693.25 | 0.120 | 0.395 | 55.6 | 79.4 |
| 69 | 801.25 | 0.130 | 0.425 | 51.6 | 73.7 |

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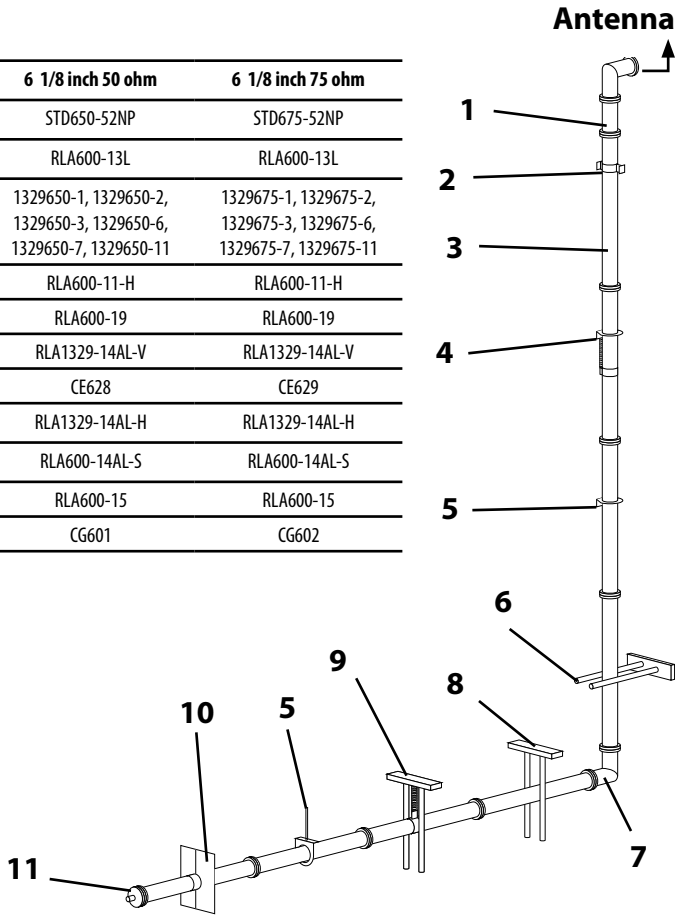
## Rigid Coaxial Line with Aluminum Outer/Copper Inner Conductor

## Components

| | 3 1/8 inch 50 ohm | 4 1/16 inch 50 ohm | 6 1/8 inch 50 ohm | 6 1/8 inch 75 ohm |
|---|---|---|---|---|
| **1. Galvanic Barrier** | STD350-52NP | STD450-52NP | STD650-52NP | STD675-52NP |
| **2. Vertical Rigid Hanger** | RLA300-13AL | RLA400-13AL | RLA600-13L | RLA600-13L |
| **3. Standard Staight Section** | 1329350-1, 1329350-2, 1329350-3, 1329350-6, 1329350-7, 1329350-11 | 1329450-1, 1329450-2, 1329450-3, 1329450-6, 1329450-7, 1329450-11 | 1329650-1, 1329650-2, 1329650-3, 1329650-6, 1329650-7, 1329650-11 | 1329675-1, 1329675-2, 1329675-3, 1329675-6, 1329675-7, 1329675-11 |
| **4. Vertical Spring Hanger** | RLA300-11-H | RLA400-11-H | RLA600-11-H | RLA600-11-H |
| **5. Sliding Hanger** | RLA300-19 | RLA400-19 | RLA600-19 | RLA600-19 |
| **6. Vertical Lateral Guide** | RLA1329-14AL-V | RLA1329-14AL-V | RLA1329-14AL-V | RLA1329-14AL-V |
| **7. Elbow** | CE357 | CE438 | CE628 | CE629 |
| **8. Horizontal Lateral Guide** | RLA1329-14AL-H | RLA1329-14AL-H | RLA1329-14AL-H | RLA1329-14AL-H |
| **9. Horizontal Suspension Guide** | RLA300-14AL-S | RLA400-14AL-S | RLA600-14AL-S | RLA600-14AL-S |
| **10. Wall/Roof Feed-Thru Plate** | RLA300-15 | RLA400-15 | RLA600-15 | RLA600-15 |
| **11. Gas Barrier** | CG302 | CG401 | CG601 | CG602 |




The simplified transmission line system shown in this diagram is intended only as aguide to the components which may be required. Each installation should be engineered individually.

## System Planning Guide

1329Line™ components consist of straight line sections, elbows, hangers, guides, and galvanic/gas barriers.

Straight line sections are furnished in standard lengths of 20.00, 19.75, 19.50, 19.00, 18.67, and 17.50 ft. Details -1, -2, -3, -7, -6, and -11 are standard line sections with flanges welded on both ends. Each section includes inner conductor, outer conductor, intermediate insulators, bullet-bellows, flange insulator, flange hardware, silicone grease, and O-ring to seal flange.

Flanges are swivel type to aid in alignment with straight sections. Each elbow is supplied with one bullet type inner connector for mating with straight section.

Hangers are provided for vertical spring support, vertical guide support, horizontal spring support, lateral rigid support and vertical or horizontal section rigid support.

### Horzontal Run

From the elbow at the base of the vertical run, two (2) lateral guides should be used on the first line section of the horizontal run spaced at 10 ft (3 m) intervals. From this point to a distance equal to 5% of the length of the vertical run, use horizontal suspension guides spaced at 10 ft (3 m) intervals or two per line section. For the remainder of the horizontal run to the wall/roof feed-thru, use sliding hangers spaced at approximately 10 ft (3 m) intervals or two per line section.

A gas barrier is provided for use inside the trasmitter building (under certain circumstances a gas barrier may be required at the top of the transmission line run). A galvanic barrier is required for tranisition to copper/brass outer conductor coaxial line components.

### Vertical Run

From the elbow at the base of the vertical run, four (4) lateral guides should be used on the first two (2) line sections spaced at 10 ft (3 m) intervals. For the next three (3) line sections use two (2) sliding hangers per line section spaced at 10 ft (3 m) intervals. For the remainder of the vertical run:

- For 3 1/8 inch and 4 1/16 inch line sizes, use one (1) spring hanger and three (3) sliding hangers for every two (2) line sections (approximately 40 ft) spaced at 10 ft (3 m) intervals.
- For 6 1/8 inch line sizes, use one (1) spring hanger and one (1) sliding hanger for every one (1) line section (approximately 20 ft) spaced at 10 ft (3 m) intervals.

A rigid hanger should be used just prior to the elbow leading to the antenna.

Galvanic barriers are to be used at the top of the transmission line system for tranisition to copper/brass outer conductor coaxial line components.

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- AGW Quick-Deploy Emergency UHF Television Antenna
- ALP Low and Medium Power UHF Television Antenna
- AL PLUS Low and Medium Power UHF Television Antenna
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