

# AL4RPV-50



AL4RPV-50, HELIAX® Plenum Rated Air Dielectric Coaxial Cable, corrugated aluminum, 1/2 in, off white PVDF jacket

- This product is part of the CommScope Wired for Wireless® Solution

## Product Classification

|                       |                   |
|-----------------------|-------------------|
| <b>Brand</b>          | HELIAX®           |
| <b>Product Series</b> | AL4-50            |
| <b>Product Type</b>   | Air coaxial cable |

## Construction Materials

|                                 |                           |
|---------------------------------|---------------------------|
| <b>Jacket Material</b>          | PVDF                      |
| <b>Dielectric Material</b>      | PE spline                 |
| <b>Flexibility</b>              | Standard                  |
| <b>Inner Conductor Material</b> | Copper-clad aluminum wire |
| <b>Jacket Color</b>             | Off-white                 |
| <b>Outer Conductor Material</b> | Corrugated aluminum       |

## Dimensions

|                             |                        |
|-----------------------------|------------------------|
| <b>Nominal Size</b>         | 1/2 in                 |
| <b>Cable Weight</b>         | 0.21 kg/m   0.14 lb/ft |
| <b>Diameter Over Jacket</b> | 15.748 mm   0.620 in   |
| <b>Inner Conductor OD</b>   | 4.5720 mm   0.1800 in  |
| <b>Outer Conductor OD</b>   | 14.046 mm   0.553 in   |

## Electrical Specifications

|  |                                    |
|--|------------------------------------|
| <b>Cable Impedance</b>                 | 50 ohm $\pm$ 2 ohm                 |
| <b>Capacitance</b>                     | 76.0 pF/m   23.0 pF/ft             |
| <b>dc Resistance, Inner Conductor</b>  | 1.570 ohms/km   0.480 ohms/kft     |
| <b>dc Resistance, Outer Conductor</b>  | 1.570 ohms/km   0.480 ohms/kft     |
| <b>dc Test Voltage</b>                 | 4000 V                             |
| <b>Inductance</b>                      | 0.190 $\mu$ H/m   0.058 $\mu$ H/ft |
| <b>Insulation Resistance</b>           | 100000 Mohms•km                    |
| <b>Jacket Spark Test Voltage (rms)</b> | 5000 V                             |
| <b>Operating Frequency Band</b>        | 1 – 6000 MHz                       |
| <b>Peak Power</b>                      | 40.0 kW                            |
| <b>Power Attenuation</b>               | 2.325                              |
| <b>Pulse Reflection</b>                | 0.5%                               |
| <b>Velocity</b>                        | 88%                                |

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## Environmental Specifications

|                                 |                                     |
|---------------------------------|-------------------------------------|
| <b>Installation Temperature</b> | -5 °C to +60 °C (+23 °F to +140 °F) |
| <b>Operating Temperature</b>    | -20 °C to +85 °C (-4 °F to +185 °F) |
| <b>Storage Temperature</b>      | -20 °C to +85 °C (-4 °F to +185 °F) |

## General Specifications

|                      |                                      |
|----------------------|--------------------------------------|
| <b>Ordering Note</b> | CommScope® standard product (Global) |
|----------------------|--------------------------------------|

## Mechanical Specifications

|  |                        |
|--|------------------------|
| <b>Bending Moment</b>                      | 6.8 N-m   5.0 ft lb    |
| <b>Fire Retardancy Test Method</b>         | NFPA 262/CATVP/CMP     |
| <b>Flat Plate Crush Strength</b>           | 1.4 kg/mm   80.0 lb/in |
| <b>Minimum Bend Radius, Multiple Bends</b> | 127.00 mm   5.00 in    |
| <b>Minimum Bend Radius, Single Bend</b>    | 64.00 mm   2.50 in     |
| <b>Number of Bends, minimum</b>            | 15                     |
| <b>Tensile Strength</b>                    | 79 kg   175 lb         |

## Note

|                         |   |
|-------------------------|---|
| <b>Performance Note</b> | Values typical, unless otherwise stated |
|-------------------------|---|

## Standard Conditions

|   |                 |
|---|-----------------|
| <b>Attenuation, Ambient Temperature</b>           | 20 °C   68 °F   |
| <b>Average Power, Ambient Temperature</b>         | 40 °C   104 °F  |
| <b>Average Power, Inner Conductor Temperature</b> | 100 °C   212 °F |

## Return Loss/VSWR

| <b>Frequency Band</b> | <b>VSWR</b> | <b>Return Loss (dB)</b> |
|-----------------------|-------------|-------------------------|
| 700–894 MHz           | 1.25        | 19.10                   |
| 806–960 MHz           | 1.25        | 19.10                   |
| 1700–2200 MHz         | 1.25        | 19.10                   |

## Attenuation

| Frequency (MHz) | Attenuation (dB/100 m) | Attenuation (dB/100 ft) | Average Power (kW) |
|-----------------|------------------------|-------------------------|--------------------|
| 0.5             | 0.152                  | 0.046                   | 40.00              |
| 1               | 0.216                  | 0.066                   | 35.37              |
| 1.5             | 0.264                  | 0.081                   | 28.84              |
| 2               | 0.306                  | 0.093                   | 24.95              |
| 10              | 0.691                  | 0.211                   | 11.04              |
| 20              | 0.985                  | 0.3                     | 7.75               |
| 30              | 1.213                  | 0.37                    | 6.29               |
| 50              | 1.581                  | 0.482                   | 4.83               |
| 85              | 2.087                  | 0.636                   | 3.66               |
| 88              | 2.126                  | 0.648                   | 3.59               |
| 100             | 2.274                  | 0.693                   | 3.35               |
| 108             | 2.368                  | 0.722                   | 3.22               |
| 150             | 2.821                  | 0.86                    | 2.70               |
| 174             | 3.054                  | 0.931                   | 2.50               |
| 200             | 3.292                  | 1.003                   | 2.32               |
| 204             | 3.327                  | 1.014                   | 2.29               |
| 300             | 4.104                  | 1.251                   | 1.86               |
| 400             | 4.808                  | 1.466                   | 1.59               |
| 450             | 5.134                  | 1.565                   | 1.49               |
| 460             | 5.197                  | 1.584                   | 1.47               |
| 460             | 5.197                  | 1.584                   | 1.47               |
| 500             | 5.445                  | 1.659                   | 1.40               |
| 512             | 5.517                  | 1.682                   | 1.38               |
| 600             | 6.032                  | 1.839                   | 1.26               |
| 700             | 6.583                  | 2.007                   | 1.16               |
| 800             | 7.105                  | 2.166                   | 1.07               |
| 824             | 7.227                  | 2.203                   | 1.06               |
| 894             | 7.574                  | 2.308                   | 1.01               |
| 960             | 7.892                  | 2.405                   | 0.97               |
| 1000            | 8.081                  | 2.463                   | 0.94               |
| 1218            | 9.068                  | 2.764                   | 0.84               |
| 1250            | 9.207                  | 2.806                   | 0.83               |
| 1500            | 10.256                 | 3.126                   | 0.74               |
| 1700            | 11.053                 | 3.369                   | 0.69               |
| 1794            | 11.416                 | 3.48                    | 0.67               |
| 1800            | 11.439                 | 3.487                   | 0.67               |
| 2000            | 12.192                 | 3.716                   | 0.63               |
| 2100            | 12.559                 | 3.828                   | 0.61               |
| 2200            | 12.92                  | 3.938                   | 0.59               |
| 2300            | 13.276                 | 4.046                   | 0.57               |
| 2500            | 13.975                 | 4.259                   | 0.55               |
| 2700            | 14.656                 | 4.467                   | 0.52               |
| 3000            | 15.649                 | 4.77                    | 0.49               |
| 3400            | 16.928                 | 5.159                   | 0.45               |
| 3600            | 17.551                 | 5.349                   | 0.43               |

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|      |        |       |      |
|------|--------|-------|------|
| 3700 | 17.859 | 5.443 | 0.43 |
| 3800 | 18.164 | 5.536 | 0.42 |
| 3900 | 18.467 | 5.628 | 0.41 |
| 4000 | 18.768 | 5.72  | 0.41 |
| 4100 | 19.066 | 5.811 | 0.40 |
| 4200 | 19.363 | 5.902 | 0.39 |
| 4300 | 19.658 | 5.991 | 0.39 |
| 4400 | 19.951 | 6.081 | 0.38 |
| 4500 | 20.241 | 6.169 | 0.38 |
| 4600 | 20.531 | 6.257 | 0.37 |
| 4700 | 20.818 | 6.345 | 0.37 |
| 4800 | 21.104 | 6.432 | 0.36 |
| 4900 | 21.388 | 6.519 | 0.36 |
| 5000 | 21.671 | 6.605 | 0.35 |
| 6000 | 24.42  | 7.443 | 0.31 |

\* Values typical, guaranteed within 5%

## Regulatory Compliance/Certifications

### Agency

RoHS 2011/65/EU  
ETL Certification  
c(ETL)us Certification  
ISO 9001:2015

### Classification

Compliant  
CATVP/CMP  
CATVP/CMP  
Designed, manufactured and/or distributed under this quality management system

