industrial data rf cable series

HCA78-50JM / HCA158-50JM

Air-Dielectric High-Power RF Feeder Cable

50 Ω 7/8" & 1-5/8" air-dielectric corrugated copper high-power RF feeder (93–95 % VoP)



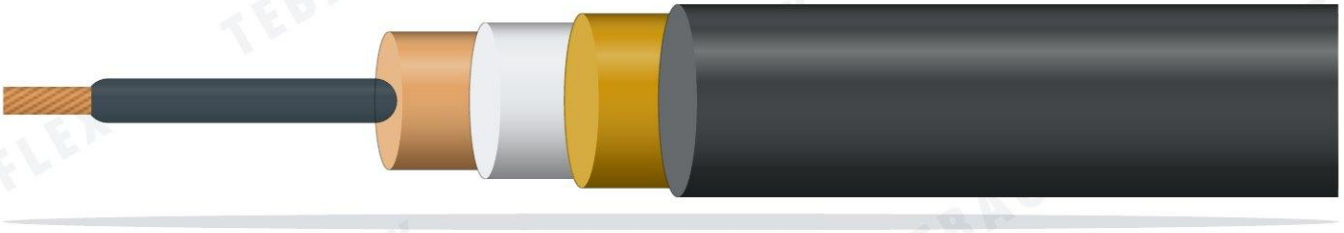
IEC 61196-7 · Air-Dielectric Feeder | 50 Ω · 93–95% VoP · High CW Power | 7/8" HCA78 · 1-5/8" HCA158

Application

50 Ω air-dielectric corrugated copper high-power RF broadcast feeder cable (HCA78-50 / HCA158-50) per IEC 61196-4 with a copper tube inner conductor, helical PE spacer (91–96 % VoP), corrugated copper outer conductor (> 120 dB shielding), and PE/LSZH jacket.

Typical uses: FM / DAB+ & Digital TV Broadcast Towers, High-Power HF / VHF Defense Radar, Particle Accelerator & Synchrotron RF, Plasma Heating & Industrial RF Generators, Coastal & Air-Traffic Control Transmitters

Construction





Cross-section, not to scale

1. Solid / corrugated copper tube inner conductor
2. Air dielectric with helical PE centering spline
3. Helically corrugated solid copper outer conductor
4. UV-stabilized polyethylene (J) or FRNC (B) sheath

Technical data

Typical values

Characteristic impedance	50 Ω ± 1 Ω	Velocity of propagation	93 % (HCA78, 71.5 pF/m) · 95 % (HCA158, 70.0 pF/m)
Max. operating frequency	3.85 GHz (HCA78) · 2.70 GHz (HCA158)	Attenuation @ 100 / 800 MHz	1.19 / 3.55 dB/100m (7/8") · 0.65 / 1.95 dB/100m (1-5/8")
Peak RF power rating	90 kW (HCA78) · 310 kW (HCA158)	Avg power @ 100 / 800 MHz	9.8 / 3.3 kW (HCA78) · 32.0 / 10.8 kW (HCA158)
Operating temperature range	-55 °C to +85 °C	Max. inner conductor temp.	+115 °C under continuous CW broadcast load
Recommended gas pressure	20 to 50 kPa (3 to 7 psi) dry air or N2	Inner / outer Cu diameter	9.0 / 25.0 mm (HCA78) · 17.6 / 46.4 mm (HCA158)
Overall jacket diameter	28.0 mm (7/8") · 50.3 mm (1-5/8")	Min. bending radius (single/rep)	150 / 250 mm (HCA78) · 300 / 550 mm (HCA158)
Screening attenuation	≥ 120 dB (solid welded corrugated copper)	UV & weather resistance	ISO 4892-2 carbon-black PE outdoor sheath
Passive intermodulation (PIM3)	≤ -163 dBc (solid Cu-to-Cu EIA flange)	Standards	IEC 61196-7 / EIA RS-225

Sizes

8 standard constructions

Tick the sizes you need and send this page to info@tebaoflex.com or WhatsApp +86 185 9591 3361.

Order designation	Impedance / size	Conductor & dielectric	Wall ≈ mm	Outer Ø ≈ mm	Metal kg/km	Weight ≈ kg/km	Min. bend R fixed mm
Standard HCA78-50JM / HCA158-50JM configurations 8 sizes							
☐ HCA58-50J	5/8" · 50 Ω Air	Cu Ø 6.5 + Helical PE	1.25	20.20	230.0	340.0	110
☐ HCA78-50JM	7/8" · 50 Ω Air (PE)	Cu Tube Ø 9.0 + Helical PE	1.50	28.00	390.0	560.0	150
☐ HCA78-50BM	7/8" · 50 Ω Air (LSZH)	Cu Tube Ø 9.0 + Helical PE	1.55	28.10	390.0	595.0	150
☐ HCA118-50J	1-1/8" · 50 Ω Air	Cu Tube Ø 12.1 + Helical PE	1.60	36.00	540.0	790.0	210
☐ HCA158-50JM	1-5/8" · 50 Ω Air (PE)	Corrugated Cu Ø 17.6 + Air	1.95	50.30	980.0	1,380.0	300
☐ HCA158-50BM	1-5/8" · 50 Ω Air (LSZH)	Corrugated Cu Ø 17.6 + Air	2.00	50.40	980.0	1,450.0	300
☐ HCA214-50J	2-1/4" · 50 Ω Air	Corrugated Cu Ø 24.0 + Air	2.20	67.50	1,480.0	2,080.0	420
☐ HCA300-50J	3" · 50 Ω Air	Corrugated Cu Ø 33.5 + Air	2.50	88.00	2,320.0	3,250.0	600

– Outer diameters and weights are nominal engineering values for HCA78-50JM / HCA158-50JM subject to standard manufacturing tolerances per IEC 61196-7 / EIA RS-225 (Air-Dielectric Corrugated Copper High-Power RF Feeder).

RF & electrical data

8 sizes

Configuration	Max. DC R @ 20 °C Ω/km	Char. Z0 Ω	Velocity VoP / L (% or nH/m)	Dielectric test VAC rms
HCA58-50J (5/8" · 50 Ω Air)	1.15	50.0	92.0	5,000
HCA78-50JM (7/8" · 50 Ω Air (PE))	0.90	50.0	93.0	7,000
HCA78-50BM (7/8" · 50 Ω Air (LSZH))	0.90	50.0	93.0	7,000
HCA118-50J (1-1/8" · 50 Ω Air)	0.65	50.0	94.0	9,000
HCA158-50JM (1-5/8" · 50 Ω Air (PE))	0.39	50.0	95.0	11,000
HCA158-50BM (1-5/8" · 50 Ω Air (LSZH))	0.39	50.0	95.0	11,000
HCA214-50J (2-1/4" · 50 Ω Air)	0.27	50.0	95.5	14,000
HCA300-50J (3" · 50 Ω Air)	0.18	50.0	96.0	18,000

– Characteristic impedance, propagation velocity, DC resistance at +20 °C, and dielectric withstand voltages verified per IEC 61196-7 / EIA RS-225 (Air-Dielectric Corrugated Copper High-Power RF Feeder).

Standards and approvals

- IEC 61196-7 / EIA RS-225 (Air-Dielectric Corrugated Copper High-Power RF Feeder)
- CE (2014/35/EU) & RoHS 3 (2015/863/EU) Compliant
- REACH SVHC Compliance Verified

Certifications

Management systems: ISO 9001, ISO 14001, ISO 45001

Request a quotation

Send the size, length and destination. An application engineer replies within 2 business hours.

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Typical values for this cable type, based on IEC 61196-7 / EIA RS-225 (Air-Dielectric Corrugated Copper High-Power RF Feeder). Values for your order are confirmed in the quotation. Subject to change without notice. Jiangsu Tebaoflex Special Cable Co., Ltd., Taicang, Jiangsu, China.