Low Power FM Antenna Systems 2022

Jampro Antennas Inc.

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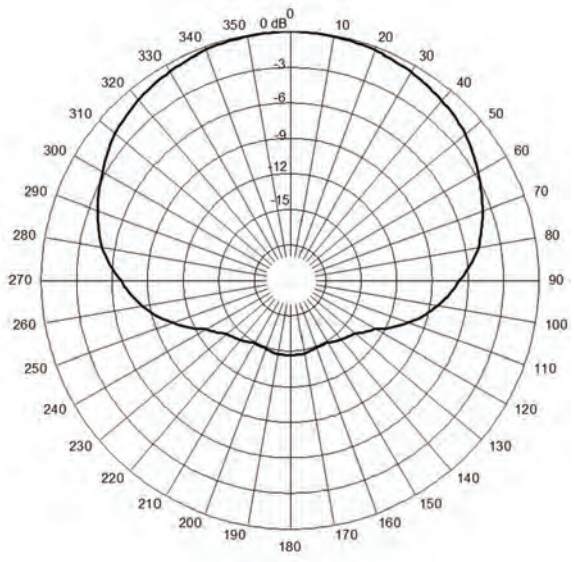
J3YF 3 ELEMENT FM YAGI ANTENNA

JAMPRO Yagi 3 Element Antenna Hot-Dip Galvanized Steel Directional Radiation Pattern

Suitable for Medium and High Power FM Stacked Array

ELECTRICAL FEATURES

Band:	87.5 – 108 MHz
Bandwidth:	FM Band
Average Gain:	4.5 dBd (6.65 dBi)
VSWR:	< 1.3:1
Polarization:	Vertical (Horizontal upon Request)
Max Power:	5000 W (Single Carrier)
Connector:	7/8" EIA
Dimensions:	54"x68"x3"/133x173x8 cm
Net weight:	26.5 lbs/12 kg



MECHANICAL FEATURES

Materials: Body and Bracket hot dip galvanized steel, Stainless steel hardware, Teflon isolators, silicone O-Rings

Mounting:

The antenna is supplied with pipe mounting for both horizontal and vertical polarization.

Standard option for pole

Ø 3.5" to 4.5" / 90 to 114mm

Also available on request option for pole

Ø 2.36" to 2.99" / 60 to 76mm

Mounting Brackets: Included

Distance Between Antennas: 2.5m - 3m / 8.25 ft - 9.84 ft

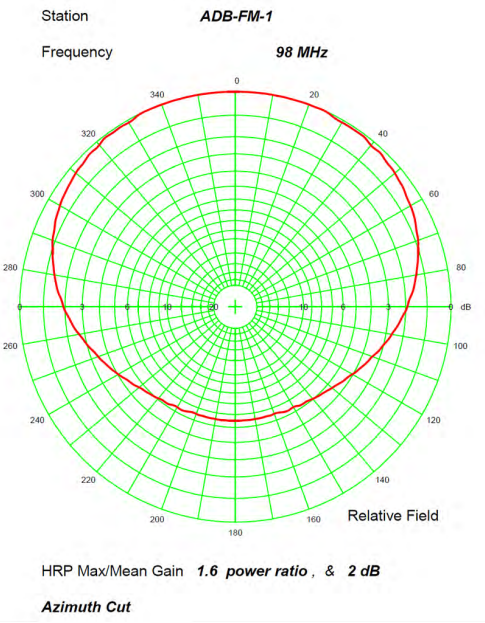
These directional antennas can be used in vertical or horizontal polarization to set up systems having directional , semi-directional and Omni directional diagrams.

All specifications subject to change without notice

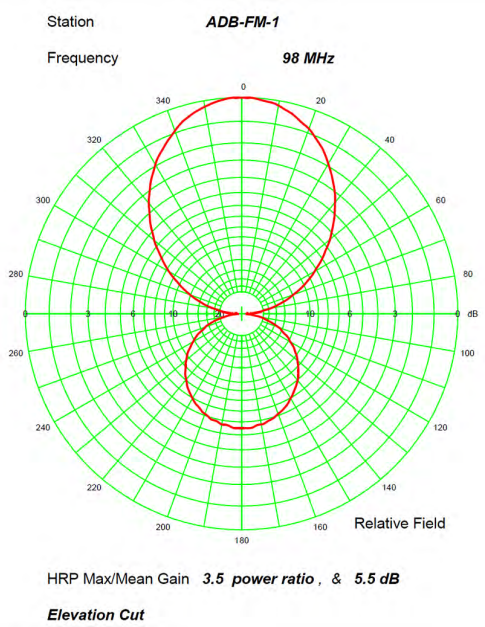
ADB-FM1

The ADB-FM1 Vertically Polarised Broadband FM Dipole Antenna provides a simple solution. The design focuses on low power FM radio stations requiring up to 1 kW input. It supports **2, 4, 6, or 8 antenna bays** or tiers. These options will deliver a gain of **5, 8, 9.8 or 11 dB**, respectively. The antenna is light and straightforward to erect.

Both the vertical and horizontal patterns are shown below, along with an image of a single element. Please note that the antenna elements construction is Aluminium. Each element includes protection with **Alodine****, which is a military-grade coating. It protects against corrosion, significantly extends the product lifetime and, more importantly, guards against degraded antenna performance.



GENERAL SPECIFICATIONS	
Frequency Band:	87.5 - 108 MHz
Antenna Gain:	2 dBd @ 98MHz
Polarisation:	Vertical
Impedance:	50 Ω
Input Connector	7-16 DIN Female (Opt. N, EIA 7/8")
Maximum Power Rating	1kW
VSWR:	≤ 1.4:1
Half Power Beam Width	H Plane 180° | V Plane 76°
Materials:	Aluminum (Alocrom Protected)
System Weight for 2,4,6,& 8 bays.	12, 19, 30 & 50 Kgs
Dimensions	1395 x 880 x 50 mm



- Specifications are typical and subject to change without notice.
- ** Alodine is a chromate conversion coating chemically applied to aluminium that provides corrosion protection. It is also applied when electrical conductivity is required like in this case.

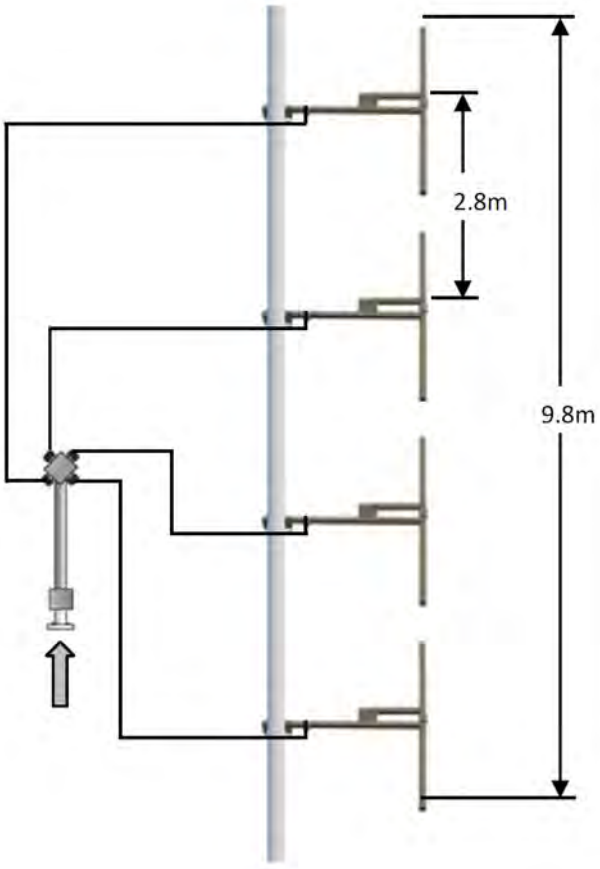
ADB-FM1

# of Bays	Gain (dB)	System Height (m)	System Weight (Kg)1
2	5.0 PK or 3.53 RMS	4.2	12
4	8.0 PK or 5.65 RMS	9.8	19
6	9.8 PK or 6.93 RMS	15.4	30
8	11.00 PK or 7.78 RMS	21.0	50

(1- without mounting hardware)

Mounting Instructions

- The suggested diameter of the mounting pole is between 60 and 110 mm.
- Should the dipoles be mounted close to a large tower or metal structure, then the radiation lobe may be altered and the VSWR might increase above 1.4:1.
- The suggested distance between the dipoles for a broadband system is 2.8m with the overall length of a 4 bay system at 9.8m.



JCPB

JCPB FM BROADBAND BROADCAST ANTENNA

The JAMPRO JCPB side mount antenna is a broadband version of the PENETRATOR antenna, which has become an industry standard for quality and performance. Each bay consists of a PENETRATOR style radiating element supported by a galvanized steel mounting bracket; standard round leg mounting brackets for a uniform face tower are included with each antenna. Dipoles are stainless steel. Silver plated inner conductor connectors are used throughout for maximum contact life and minimum power loss.

Dipole Power rating 2.5kW (JCPB-M) | 5kW (JCPB-H)

Ideal for broadband & multi frequency applications

Excellent VSWR & bandwidth without field tuning

Circular polarization

DC ground at each bay & balun radomes available

Electrical Specifications	
Frequency	Band II 87.5-108 MHz
Circularity	2.0 dB (Free Space)
Polarization	Circular
Impedance	50 ohm
VSWR	1.25:1

JCPB

# of Bays	Power Gain (HPOL) (times)	Gain (HPOL) (dB)	Max Power Rating JCPB-M	JCPB-H*
1	.45	-3.4	2.5 kW	5 kW
2	.90	-0.4	5 kW	10 kW
3	1.38	1.4	7.5 kW	15 kW
4	1.95	2.9	10 kW	20 kW
6	3.0	4.8	10 kW	30 kW
8	4.3	6.4	10 kW	40 kW

NOTES:

1. All inputs EIA flange, female.
2. Power derating occurs above 2,000 ft. elevation.
3. Power and dB gains are typical RMS gains for horizontal and vertical components.
4. Special mounting brackets available.
5. Other combinations of EIA inputs and Higher power ratings available.
6. Free space azimuth circularity is 2.0 dB.
7. Polarization is right hand, clockwise, circular.
8. Power gain is based on half wave dipole in free space.

Since many factors contribute to a station's compliance with the FCC exposure guidelines for radio frequency radiation (RFR), JAMPRO ANTENNAS, INC. cannot accept any responsibility in this matter. The station must examine and determine its status based on each individual situation. For reduced low angle radiation near the tower, a low RFR model of this antenna is available. Contact the factory for pricing data and further details.

*All specifications subject to change without notice. Higher power ratings available

JLLP

LOW POWER PENETRATOR

The JAMPRO JLLP antenna has been designed to meet the needs of low power and educational stations that require excellent performance on a low budget. This antenna uses the same basic design as the JAMPRO PENETRATOR series of side-mount antennas, which set the industry standard for FM antennas. By using an external and non-pressurized feed system, manufacturing costs are kept to a minimum. Each bay is fed with flexible cable. Configurations with two or more bays are fed through a power divider and cable system that has a 7/8" EIA flange input (female). The antenna elements are constructed of high strength marine brass.

Power rating 4kW maximum

Outstanding VSWR without field tuning

Available for 88-108 MHz

Electrical deicers available

VSWR 1.1:1 +/- 150 kHz

TYPICAL SPECIFICATIONS					
# of Bays	Power Gain	Gain (dB)	Input Power	Net Weight (lbs.)	Windload (lbs)
1	0.475	-3.23	1 kW	14	36
2	0.955	-0.2	2 kW	34	82
3	1.5	1.76	3 kW	50	114
4	2.05	3.12	4 kW	64	146

*Values provided average/RMS gains; All other stated gains are Peak gains. Gains do not include losses for feed system beam tit or null fill.

Non-ionizing Radiation
Since many factors contribute to a station's compliance with the FCC exposure guidelines for radio frequency radiation, JAMPRO ANTENNAS, INC. cannot accept any responsibility in this matter. The station must examine and determine its status based on each individual situation.

*All specifications are subject to change without notice.

JAMPRO ANTENNAS, INC.

JFWD

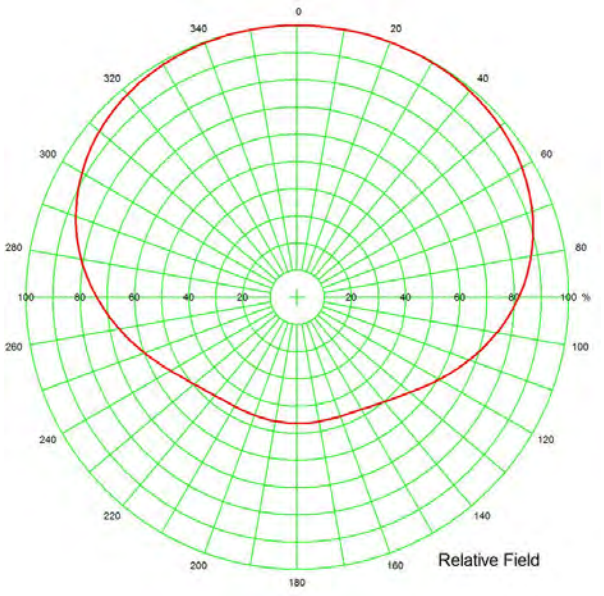
Band II Folded Dipole Antenna

Typical Electrical Specifications	
Frequency Range	87.5MHz to 108MHz
Return Loss dB	<-14dB
VSWR	<1.5:1
HRP Beamwidth	203
Front to back ratio	6dB
Polarization	Vertical
Connector	Type “N”

Mechanical Data	
Dipole	Ø 15.8mm (5/8”) aluminum with 1.6mm (16swg) wall
Support boom	31.75mm (1 1/4”) square aluminum with 1.6mm (16swg) wall
Weight	6kg / 14lbs
Weather protection	Feed point potted in polyurethane resin

3dB Beamwidth and Gain Table				
No of Bays	Gain dBd	Beamwidth VRP	Max Power	Kg/lbs
1	2.8	73	300W	6/14
2	5.1	29	300W (limited by input power divider)	25/55
4	8.9	13	300W (limited by input power divider)	35/77
6	10.4	8.5	300W (limited by input power divider)	40/89
8	11.7	6.4	300W (limited by input power divider)	55/122

N.B. If higher power ratings are required please contact the factory



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JLCP

JLCP LOW POWER ANTENNA

The JAMPRO JLCP is a low power antenna designed specifically for Omni-Directional low power applications such as LPFM, Translator and Booster stations. The simplicity of the JLCP helix design gives low power stations the flexibility needed to meet their individual requirements. It offers Stainless Steel Construction. A stacking harness is included when multiple bay arrays are ordered. The JLCP is field tunable from 88 to 108 MHz. The antenna features: VSWR 1.5:1 or better. Standard 500 watt input rating with 1kW & 2 kW available. Provided for 2" OD pole mount. Optional special brackets available, contact factory.

- **Radomes Available**
- **Stainless steel construction**
- **500 Watts input power option 1 & 2 kW**
- **Circularly polarized**
- **Low maintenance**
- **Easy to install**
- **Field tunable**
- **VSWR: 1.5:1 or better**

# of Bays	Gain (Times)	Gain (dB)	Input Size 500 Watts	Input Size 1000 Watts	Input Size 2000 Watts	Net Weight (lbs.)	Wind load (lbs)
1	0.46	-3.37	Type "N"	7-16 DIN	Not Avail.	Contact Factory	
2	0.955	-0.02	Type "N"	7/8" EIA	7/8" EIA		
3	1.5	1.76	Not Available	7/8" EIA	7/8" EIA		
4	2.05	3.12	Type "N"	7/8" EIA	7/8" EIA		
5	2.55	4.06	Not Available	7/8" EIA	7/8" EIA		
6	3.07	4.87	Not Available	7/8" EIA	7/8" EIA		
8	4.1	6.12	Not Available	7/8" EIA	7/8" EIA		

***All specifications are subject to change without notice.**

JAVA FM Broadband Log Periodic ANTENNA

JAMPRO JAVA FM broadband log periodic antenna system is one of the finest available to the broadcasting industry. Ideal for High Gain Directional applications.

It is Broadband with Low VSWR across the entire FM Band. (87.5 to 108 MHz).

The antenna system consists of log periodic antenna assemblies, power divider, feed cables, mounting brackets/hardware to provide secure mounting to the tower.

Custom directional azimuth pattern and FCC Certification available on the Jampro full-scale test range to confirm FCC DA/ Customer's requirements.

- FM Band:	**87.5-108 MHz**
- Element Gain:	**6.5 dBd**
- Input power:	**5 kW**
- VSWR:	**≤1.3:1**
- FM Band Polarization:	**Vertical, Horizontal or Slant**
- Input Connector:	**7/8" EIA**

Aluminum or Hot dipped Galvanized-optional

Custom directional patterns

RCBC-XTX-FM

500 WATTS, FM BANDPASS FILTER

The JAMPRO RF SYSTEM Series RCBC-xTx*-FM Low Power Combline Bandpass Filters are designed to provide optimum performance in a small package size. The filters utilize capacitively loaded copper center conductors inside three inch aluminum cavities to ensure low passband loss.

Two, three, or four section filters are available to meet the required rejection specifications. Wide passband bandwidth is maintained for all designed to ensure no signal degradation. This design can be used for input power levels to 500 watts.

Type "N", 7-16 DIN or 7/8" EIA connectors are available as required by the applications.

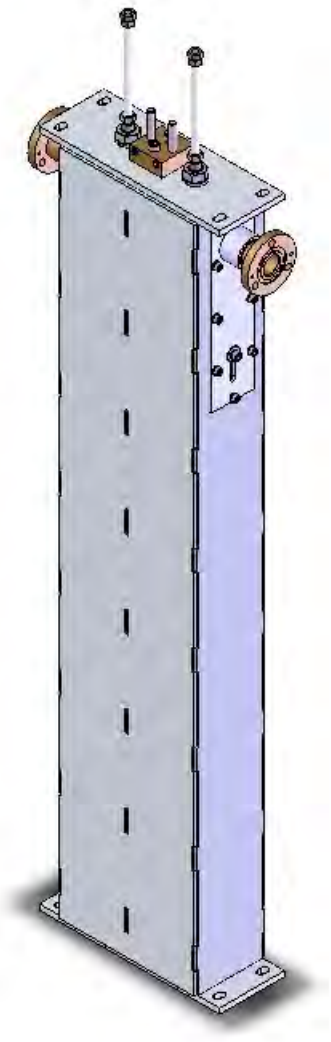


Photo shown is for RCBC-1T2-FM

RCBC-XTX-FM Typical Specifications	
Type	2, 3, 4 Section Combline
Frequency	88 to 108 MHz
Power	500 watts Max.
VSWR	1.12:1 Max ± 150 kHz
Rejection	
2-Section	30 dB ± 4.0 MHz
3-Section	30 dB ± 1.6 MHz
4-Section	30 dB ± 1.0 MHz

RCBC-X0X-FM

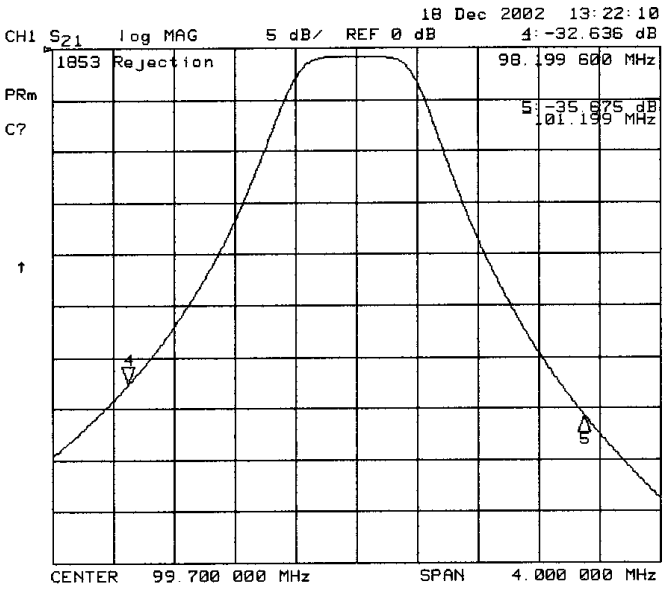
1500 WATTS, FM BANDPASS FILTER

The JAMPRO RF SYSTEM Series RCBC-x0x*-FM Low Power Combline Bandpass Filters are designed to provide optimum performance in a small package size. The filters utilize capacitively loaded copper center conductors inside four inch aluminum cavities to ensure low passband loss.

Two, three, or four section filters are available to meet the required rejection specifications. Wide passband bandwidth is maintained for all designed to ensure no signal degradation. This design can be used for input power levels to 1.5 kW.

Type "N", 7-16 DIN or 7/8" EIA connectors are available as required by the applications. Filters are unflanged. Flanged available upon request.

RCBC-X0X-FM Typical Specifications	
Type	2, 3, 4 Section Combline
Frequency	88 to 108 MHz
Power	1.5 kW Max.
VSWR	1.2:1 Max ± 150 kHz
Insertion Loss	1.2 dB Max ± 200 kHz
	0.5 dB Typical
Rejection	
2-Section	30 dB ± 4.0 MHz
3-Section	30 dB ± 1.6 MHz
4-Section	30 dB ± 1.0 MHz



Rejection Plot 3-section filter

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Coaxial Cable

7/8" Foam-Dielectric Coaxial Cable
Corrugated Copper – 50 Ohm

DESCRIPTION

Low Loss Cable, standard jacket

Low Loss Cable, fire retardant, halogen free jacket

CONSTRUCTION

- **Inner conductor**
  - Material: smooth copper tube
  - Diameter, in (mm): 0.37 (9.3)
- **Dielectric**
  - Material: microcell gas-injected PE
  - Diameter, in (mm): 0.93 (23.5)
- **Outer conductor**
  - Material: corrugated copper
  - Diameter, in (mm): 0.98 (25.0)
- **Outer sheath**
  - Material: Durathene™
  - Thickness, in (mm): 0.06 (1.4)
  - Diameter, in (mm): 1.10 (28.0)

MECHANICAL CHARACTERISTICS

- **Minimum bending radius**
  - a) Single bending, in (cm): 4 (10)
  - b) 15 repeated bends, in (cm): 10 (25)
- **Maximum pulling strength**, lb (kg): 330 (150)
- **Recommended temperature range**
  - Storage: -94 to +185°F (-70 to +85°C)
  - Installation: -40 to +140°F (-40 to +60°C)
  - Operation: -67 to +185°F (-55 to +85°C)
- **Maximum length per hoisting grip**, ft (m): 230 (70)
- **Maximum hanger spacing**, ft (m): 4 (1.2)
- **Flat plate crush resistance**, lb/in (kg/mm): 79 (1.4)
- **Bending moment**, lb-ft (N•m): 8.6 (11.6)
- **Weight**, lb/ft (kg/m): 0.33 (0.50)

ELECTRICAL CHARACTERISTICS

- **Characteristic impedance**, Ω: 50 ± 1
- **Nominal capacitance**, pF/ft (pF/m): 23 (75)
- **Relative propagation velocity**, %: 89
- **Inductance**, µH/ft (µH/m): 0.057 (0.187)
- **DC-resistance at 68°F (20°C)**
  - Inner conductor, Ω/1000 ft (Ω/1000 m): 0.41 (1.34)
  - Outer conductor, Ω/1000 ft (Ω/1000 m): 0.30 (1.0)
- **RF peak voltage**, kV: 2.9
- **RF peak power**, kW: 86
- **Cut-off frequency**, GHz: 5.1
- **Insulation resistance**, MΩ/km: ≥5000

ELECTRICAL CHARACTERISTICS

- **Attenuation and power rating**

Frequency (MHz)	Attenuation at 68°F (20°C)* (dB/100 ft)	(dB/100m)	Mean power rating** (kW)
10	0.108	0.353	25.46
20	0.153	0.502	17.93
30	0.188	0.616	14.60
80	0.310	1.02	8.85
100	0.348	1.14	7.89
150	0.429	1.41	6.40
200	0.498	1.63	5.51
300	0.615	2.02	4.46
400	0.716	2.35	3.83
450	0.762	2.50	3.60
500	0.805	2.64	3.41
600	0.888	2.91	3.09
700	0.964	3.16	2.85
800	1.04	3.40	2.65
894	1.10	3.61	2.49
960	1.14	3.75	2.40
1000	1.17	3.83	2.35
1500	1.46	4.79	1.88
1700	1.56	5.13	1.75
1800	1.61	5.30	1.70
1880	1.65	5.43	1.66
2000	1.71	5.62	1.60
2170	1.79	5.88	1.53
2200	1.81	5.92	1.52
2300	1.85	6.07	1.48
2400	1.90	6.22	1.45
2500	1.94	6.37	1.41
3000	2.15	7.06	1.27
4000	2.54	8.33	1.08
6000	-	-	-

* Nominal values

** Ambient temperature = 104°F (40°C); temperature of inner conductor = 212°F (100°C); VSWR = 1.0; no solar loading

Coaxial Cable

7/8" Coaxial Connectors

A-Series

DESCRIPTION
N-male, MonoBlock, O-ring
N-female, MonoBlock, O-ring
7/16 DIN male, MonoBlock, O-ring
7/16 DIN female, MonoBlock, O-ring

Standard Series

DESCRIPTION
N-male, MonoBlock, O-ring
N-female, MonoBlock, O-ring
7/16 DIN male, MonoBlock, O-ring
7/16 DIN female, MonoBlock, O-ring

ELECTRICAL

• **Nominal impedance**, Ω	50
• **Return loss @ 2.5 GHz,** dB	-35
• **3rd order intermodulation product**, dBc	-163
• **Temperature range**	-40°F to +140°F (-40°C to +60°C)
• **Water immersion testing**	IP67 & IP68
• **Materials**	
External parts	Passivated silver plated or electroless nickel plated brass
• **Outer contact**	Passivated silver plated brass
• **Inner contact**	Passivated silver plated Cu-Be
• **Dielectric**	TXP / PTFE
• **O-rings**	Silicone rubber

ACCESSORIES

DESCRIPTION
Tools
Cable Prep Tool, MonoBlock Connectors
Ground Kit Tool
Torque Wrench, Back Nut
Torque Wrench, 7/16 DIN Coupler
Hoisting Grip
Lace-Up Hoisting Grip
Pre-Laced Hoisting Grip
Hangers
Butterfly Hangers, Kit of 10
Snap-In Hangers, Kit of 10
Snap-Stack Hangers, Kit of 10
Coax Support Blocks
Mini Coax Support Blks, Kit of 10

DESCRIPTION
Angle Adapters, Stainless Steel
Universal SST Angle Adaptor, Kit of 10
SST Angle Adaptor, Kit of 10
Grounding Kits
Standard Grounding Kit
Clip-On Grounding Kit
Weatherproofing
Standard Weatherproofing Kit
Boots and Cushions
4" Boot Assembly, 1 hole
4" Boot Assembly, 3 hole
Standard Port Cushion, 1 hole
4" Boot Assembly, Cushion not included
5" Boot Assembly, Cushion not included

Coaxial Cable

1/2" Foam-Dielectric Coaxial Cable
Corrugated Copper – 50 Ohm

DESCRIPTION

Low Loss Cable, standard jacket

Low Loss Cable, fire retardant, halogen free jacket

CONSTRUCTION

- **Inner conductor**
  - Material: copper clad aluminum
  - Diameter, in (mm): 0.189 (4.8)
- **Dielectric**
  - Material: microcell gas-injected PE
  - Diameter, in (mm): 0.488 (12.4)
- **Outer conductor**
  - Material: corrugated copper
  - Diameter, in (mm): 0.539 (13.7)
- **Outer sheath**
  - Material: Durathene™
  - Thickness, in (mm): 0.043 (1.1)
  - Diameter, in (mm): 0.630 (16.0)

MECHANICAL CHARACTERISTICS

- **Minimum bending radius**
  - a) Single bending, in (cm): 2.8 (7)
  - b) 15 repeated bends, in (cm): 5 (12.5)
- **Maximum pulling strength**, lb (kg): 220 (100)
- **Recommended temperature range**
  - Storage: -94 to +185°F (-70 to +85°C)
  - Installation: -40 to +140°F (-40 to +60°C)
  - Operation: -67 to +185°F (-55 to +85°C)
- **Maximum length per hoisting grip**, ft (m): 230 (70)
- **Maximum hanger spacing**, ft (m): 3 (0.9)
- **Flat plate crush resistance**, lb/in (kg/mm): 106 (1.9)
- **Bending moment**, lb-ft (N•m): 2.6 (3.5)
- **Weight**, lb/ft (kg/m): 0.16 (0.24)

ELECTRICAL CHARACTERISTICS

- **Characteristic impedance**, Ω: 50 ± 1
- **Nominal capacitance**, pF/ft (pF/m): 23 (76)
- **Relative propagation velocity**, %: 88
- **Inductance**, µH/ft (µH/m): 0.058 (0.19)
- **DC-resistance at 68°F (20°C)**
  - Inner conductor, Ω/1000 ft (Ω/1000 m): 0.45 (1.48)
  - Outer conductor, Ω/1000 ft (Ω/1000 m): 0.62 (2.04)
- **RF peak voltage**, kV: 1.6
- **RF peak power**, kW: 25.6
- **Cut-off frequency**, GHz: 9.8
- **Insulation resistance**, MΩ/km: ≥5000

ELECTRICAL CHARACTERISTICS

- **Attenuation and power rating**

Frequency (MHz)	Attenuation at 68°F (20°C)* (dB/100 ft)	(dB/100m)	Mean power rating** (kW)
10	0.205	0.672	11.74
20	0.291	0.954	8.28
30	0.357	1.17	6.74
50	0.463	1.52	5.19
88	0.619	2.03	3.88
100	0.661	2.17	3.63
108	0.688	2.26	3.49
150	0.815	2.67	2.94
174	0.880	2.89	2.72
200	0.946	3.10	2.53
300	1.17	3.83	2.05
400	1.36	4.46	1.76
450	1.45	4.75	1.65
500	1.53	5.02	1.56
512	1.55	5.08	1.54
600	1.69	5.53	1.41
700	1.83	6.01	1.30
800	1.97	6.45	1.21
824	2.00	6.56	1.19
894	2.09	6.85	1.14
960	2.17	7.12	1.09
1000	2.22	7.28	1.07
1250	2.51	8.22	0.94
1500	2.77	9.09	0.85
1700	2.97	9.74	0.79
1800	3.07	10.1	0.77
2000	3.25	10.7	0.72
2100	3.34	11.0	0.70
2200	3.43	11.2	0.69
2300	4.52	11.5	0.67
3000	4.09	13.4	0.57
3400	4.39	14.4	0.53
4000	4.82	15.8	0.48
5000	5.49	18.0	0.42
6000	6.11	20.1	0.38

* Nominal values

** Ambient temperature = 104°F (40°C); temperature of inner conductor = 212°F (100°C); VSWR = 1.0; no solar loading

Coaxial Cable

1/2" Coaxial Connectors

DESCRIPTION
N-male, O-ring
N-female, O-ring
N-male, right angle, O-ring
7/16 DIN male, O-ring
7/16 DIN female, O-ring
7/16 DIN male, right angle, O-ring
7/8 EIA flange, O-ring

ELECTRICAL

- **Nominal impedance** (Ω) 50
- **Return loss @ 2.5 GHz** (dB) -35
- **3rd order intermodulation product** (dBc) -163
- **Temperature range** -40°F to +140°F (-40°C to +60°C)
- **Water immersion testing** IP67 & IP68
- **Materials**
  - External parts: Passivated silver plated or electroless nickel plated brass
  - **Outer contact**: Passivated silver plated brass
  - **Inner contact**: Passivated silver plated Cu-Be
  - **Dielectric**: TXP / PTFE
  - **O-rings**: Silicone rubber

ACCESSORIES

DESCRIPTION

Tools

Cable Prep Tool
Torque Wrench, Back Nut
Torque Wrench, 7/16 DIN Coupler

Hoisting Grips

Lace-Up Hoisting Grip
Pre-Laced Hoisting Grip

Hangers

Butterfly Hangers, Kit of 10
Snap-In Hangers, Kit of 10
Snap-Stack Hangers, Kit of 10

Coax Support Blocks

Mini Coax Support Blks, Kit of 10
Large Coax Support Blks, Kit of 10

DESCRIPTION

Angle Adapters, Stainless Steel

Universal SST Angle Adaptor, Kit of 10
SST Angle Adaptor, Kit of 10

Weatherproofing

Standard Weatherproofing Kit

Boots and Cushions

4" Boot Assembly, 1 hole
4" Boot Assembly, 3 hole
Standard Port Cushion, 1 hole
Standard Port Cushion, 2 hole
Standard Port Cushion, 3 hole
4" Boot Assembly, Cushion not included
5" Boot Assembly, Cushion not included