

904 Series

The 904 series of panels are designed as building blocks for broadband, high power FM arrays for broadcasting in the FM band (87.5 -108MHz).

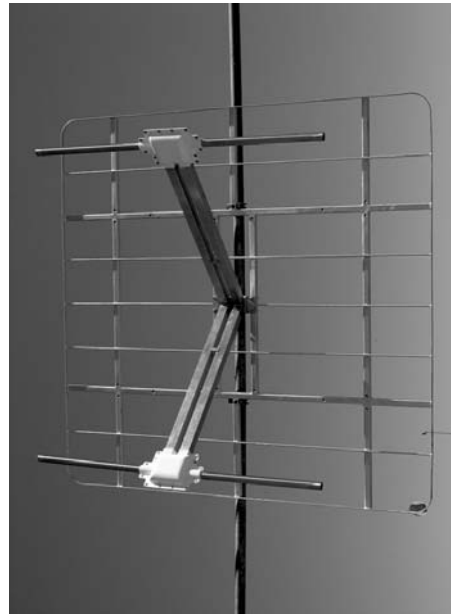
- Full band (87.5 - 108MHz) operation
- Low VSWR over full band
- Ideal for multichannel use
- Horizontal, vertical or circular polarization depending on model
- Solid stainless steel construction, galvanized screen
- Cyclone rated
- Optional radome available for icing conditions
- Temperature range -40 to +60 degrees C available

The 904CP panels comprise a pair of horizontal and a pair of vertical dipoles in a square configuration mounted off a reflective screen. In this configuration RH or LH circular polarization is possible. There are four input connectors on each panel. The 904VP and 904HP panels are supplied with either a vertical or horizontal pair of dipoles for vertical or horizontal polarization. Radomes are available for these models. The 904HPS panel comprises a radiator dipole assembly mounted off a reflective screen. In this configuration vertical or horizontal polarization is possible. These panels have a single input connector to simplify the feed system. An integrated feed-point radome is supplied. The 904CPX panels comprise two crossed dipoles mounted off a reflective screen. This configuration provides circular polarization. There are two input connectors on each panel. The extremely low VSWR performance of all models together with high power capacity provides the broadcaster with the optimum solutions for multi-channel operation. The design utilizes stainless steel radiators with galvanized screen and ensures a very long trouble free life, even when installed in remote hostile environments. All panels are suitable to be used as elements in an array on a 4-sided tower.

The 904 panels can be arranged to provide the required coverage for a particular service area. Array design can be carried out by RFS engineers. Both directional and omnidirectional patterns are available and beam tilt and null fill can be customized to specification. Panels are fed through a power divider network that is designed to meet the power handling requirements of the array.



Model 904CP panel



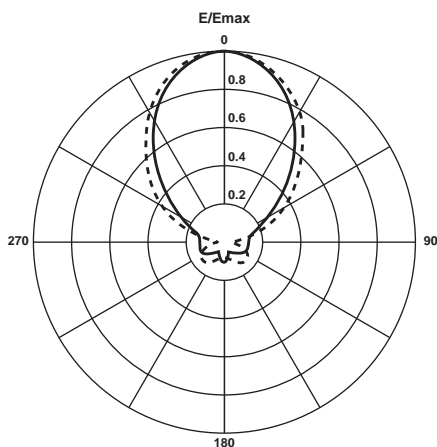
Model 904HPS panel

Band II (VHF) FM Panel Arrays

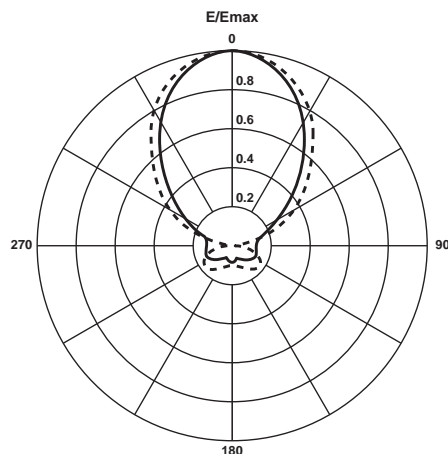
87.5 - 108 MHz

904 Series

| SPECIFICATIONS | 904HP | 904VP | 904CP | 904HPS |
|---|------------------------------------|------------------------------------|------------------------------------|-------------------------------------|
| Frequency Range, MHz | 87.5 - 108 | 87.5 - 108 | 87.5 - 108 | 87.5 - 108 |
| Polarization | Horizontal | Vertical | Circular | Horizontal |
| Gain per Plane of Polarization, dBd | 7.5 | 7.5 | 4.5 | 7.5 |
| Half Power Beamwidth Azimuth, degrees | 65 | 65 | 65 | 65 |
| Return Loss, dB | 20 | 20 | 26 | 20 |
| Input Connector | 2 x 7-16 DIN; 2 x 7/8" EIA Flange | 2 x 7-16 DIN; 2 x 7/8" EIA Flange | 4 x 7-16 DIN; 4 x 7/8" EIA Flange | 7-16 DIN; 7/8" EIA Flange |
| Power Rating per Input, kW | 3.5 (7-16 DIN); 5 (7/8" EIA) | 3.5 (7-16 DIN); 5 (7/8" EIA) | 3.5 (7-16 DIN); 5 (7/8" EIA) | 3.5 (7-16 DIN); 5 (7/8" EIA) |
| Impedance, ohms | 50 unbalanced | 50 unbalanced | 50 unbalanced | 50 unbalanced |
| Weight, kg (lb) | 70 (154) | 70 (154) | 96 (212) | 76 (168) |
| Mounting (Standard), mm (in) | 4 x U bolts | 4 x U bolts | 4 x U bolts | 4 mounting points at 1030mm centers |
| Effective Area Front (full antenna), sq m (sq ft) | 1.07 (11.52) | 1.08 (11.63) | 1.26 (13.56) | 1.08 (11.63) |
| Effective Area Side (full antenna), sq m (sq ft) | 0.72 (7.75) | 0.89 (9.58) | 1.03 (11.09) | 0.72 (7.75) |
| Design Wind Speed (max), km/h (mph) | 240 (150) | 240 (150) | 240 (150) | 240 (150) |
| Pressurization Operational, kPa (psi) | 10 - 35 (1.5 - 5) 7/8" EIA Version | 10 - 35 (1.5 - 5) 7/8" EIA Version | 10 - 35 (1.5 - 5) 7/8" EIA Version | 10 - 35 (1.5 - 5) 7/8" EIA Version |
| Pressurization Test, kPa (psi) | 100 (15) 7/8" EIA Version | 100 (15) 7/8" EIA Version | 100 (15) 7/8" EIA Version | 100 (15) 7/8" EIA Version |
| Material - Insulators | PTFE | PTFE | PTFE | PTFE |
| Material - Radiators | Stainless steel | Stainless steel | Stainless steel | Stainless steel |
| Material - Reflecting Screen | Galvanized steel | Galvanized steel | Galvanized steel | Galvanized steel |



Horizontal Radiation Patterns per plane of Polarization



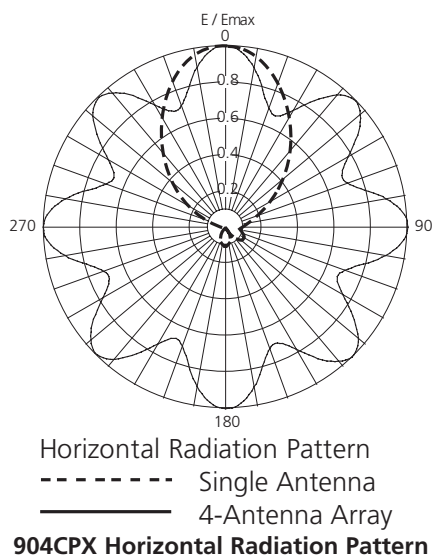
Vertical Radiation Patterns per plane of Polarization

904 Series

| SPECIFICATIONS | 904VPS | 904CPX |
|---|---|---------------------------------------|
| Frequency Range, MHz | 87.5 - 108 | 87.5 - 108 |
| Polarization | Vertical | Circular |
| Gain per Plane of Polarization, dBd | 7.5 | 4.0 |
| Half Power Beamwidth Azimuth, degrees | 65 | 65 |
| Return Loss, dB | 20 | >20 (typically >26 in array) |
| Input Connector | 7-16 DIN; 7/8" EIA Flange | 2 x 7-16 DIN; 2 x 7/8" EIA Flange |
| Power Rating per Input, kW | 3.5 (7-16 DIN); 5 (7/8" EIA) | 3.5 (7-16 DIN); 5 (7/8" EIA) |
| Impedance, ohms | 50 unbalanced | 50 unbalanced |
| Weight, kg (lb) | 76 (168) | 98 (216) |
| Mounting (Standard), mm (in) | 4 mounting points at 1030mm centers | 4 x M12 x 80mm (3-5/32) bolts |
| Effective Area Front (full antenna), sq m (sq ft) | 1.08 (11.63) | 1.58 (17) |
| Effective Area Side (full antenna), sq m (sq ft) | 0.89 (9.58) | 1.37 (14.7) |
| Design Wind Speed (max), km/h (mph) | 240 (150) | 240 (150) |
| Pressurization Operational, kPa (psi) | 10 - 35 (1.5 - 5) 7/8" EIA Version | 10 - 35 (1.5 - 5) 7/8" EIA Version |
| Pressurization Test, kPa (psi) | 100 (15) 7/8" EIA Version | 100 (15) 7/8" EIA Version |
| Material - Insulators | PTFE | PTFE |
| Material - Radiators | Stainless steel | Stainless steel |
| Material - Reflecting Screen | Galvanized steel | Galvanized steel |



Model CPX array



903 Series

The 903 series is designed as a building block for broadband high power FM arrays for broadcasting in the FM Band (87.5 – 108 MHz). The 903 series is designed for use on triangular cross section masts.

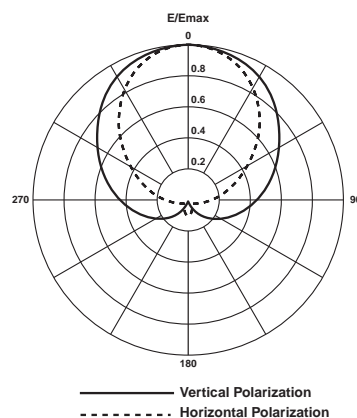
- Full band (87.5 – 108MHz) operation
- Low cost alternative to the 4 sided antenna
- Low VSWR
- Suitable for multichannel use
- Circular polarization
- Two inputs per panel
- Available in pressurized or unpressurized versions
- Solid galvanized steel screen construction
- Dipole elements are stainless steel
- Cyclone rated
- Designed for minimum windload
- Radomes and special 'O' rings available for icing conditions
- Temperature range -40 to +60 degrees C available



903CP-2

The 903CP panel comprises two crossed dipoles mounted off a reflective screen. This configuration allows circular polarization. The 903HP comprises two horizontal dipoles mounted off a reflective screen for horizontal polarization. Similarly the 903VP comprises two vertically mounted dipoles off a reflective screen for vertical polarization. In some configurations the dipoles are angled towards the screen reducing backlobes and making the panel ideal as an array element on 3 sided towers or masts. The design utilizes stainless steel radiators with galvanized screen and ensures a very long trouble free life, even when installed in remote hostile environments.

The 903 panels can be arranged to provide the required coverage for a particular service area. Array design can be carried out by RFS engineers. Both directional and omnidirectional patterns are available as well as beam tilt and null fill to customer specification. Panels are fed through a power divider network which is designed to meet the power handling requirements of the array. As each panel is rated at 2 x 5kW, higher power ratings are easily achievable. The system should be fully pressurized in a high power configuration. For low to medium power applications a power distribution and cable network utilizing foam feeders and unpressurized power dividers is available.



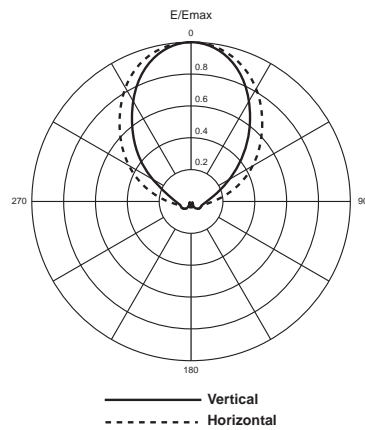
903 CP Series Horizontal Radiation Patterns per Plane of Polarization

903 Series

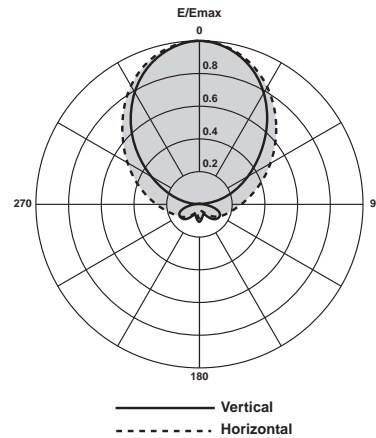
| SPECIFICATIONS | 903CP | 903HP | 903VP |
|---|------------------------------------|------------------------------------|------------------------------------|
| Frequency Range, MHz | 87.5 - 108 | 87.5 - 108 | 87.5 - 108 |
| Polarization | Circular | Horizontal | Vertical |
| Nominal Gain (Mid-band), dBd | 3.5 | 7 | 6.1 |
| Gain per Plane of Polarization, dBd | 3.5 | | |
| Return Loss, dB | 20 | 20 | 20 |
| Input Connector | 2 x 7-16 DIN; 2 x 7/8" EIA Flange | 2 x 7-16 DIN; 2 x 7/8" EIA Flange | 2 x 7-16 DIN; 2 x 7/8" EIA Flange |
| Power Rating per Input, kW | 4; 5 Note#1 | 4; 5 Note#1 | 4; 5 Note#1 |
| Impedance, ohms | 50 unbalanced | 50 unbalanced | 50 unbalanced |
| Weight, kg (lb) | 61 (135) | 47 (103) | 69 (152) |
| Mounting (Standard), mm (in) | 4 x M12 x 80mm (3-5/32) bolts | 4 x U bolts | 4 x U bolts |
| Recommended Spacing between Bays, cm (in) | 280 (108) | 280 (108) | 280 (108) |
| Effective Area Front (full antenna), sq m (sq ft) | 1.0 (10.8) | 0.48 (5.16) | 0.91 (9.8) |
| Effective Area Side (full antenna), sq m (sq ft) | 0.65 (7.00) | 0.47 (5.06) | 0.84 (9.04) |
| Design Wind Speed (max), km/h (mph) | 240 (150) | 240 (150) | 240 (150) |
| Pressurization Operational, kPa (psi) | 10 - 35 (1.5 - 5) 7/8" EIA Version | 10 - 35 (1.5 - 5) 7/8" EIA Version | 10 - 35 (1.5 - 5) 7/8" EIA Version |
| Pressurization Test, kPa (psi) | 100 (15) 7/8" EIA Version | 100 (15) 7/8" EIA Version | 100 (15) 7/8" EIA Version |
| Material - Insulators | PTFE | PTFE | PTFE |
| Material - Radiators | Stainless steel | Stainless steel | Stainless steel |
| Material - Reflecting Screen | Galvanized steel | Galvanized steel | Galvanized steel |

Note 1

Power rating per input is limited by input connector. 4kW for 7-16 DIN, 5kW for 7/8" EIA



903 HP Series Radiation Patterns



903 VP Series Radiation Patterns

CPF Series

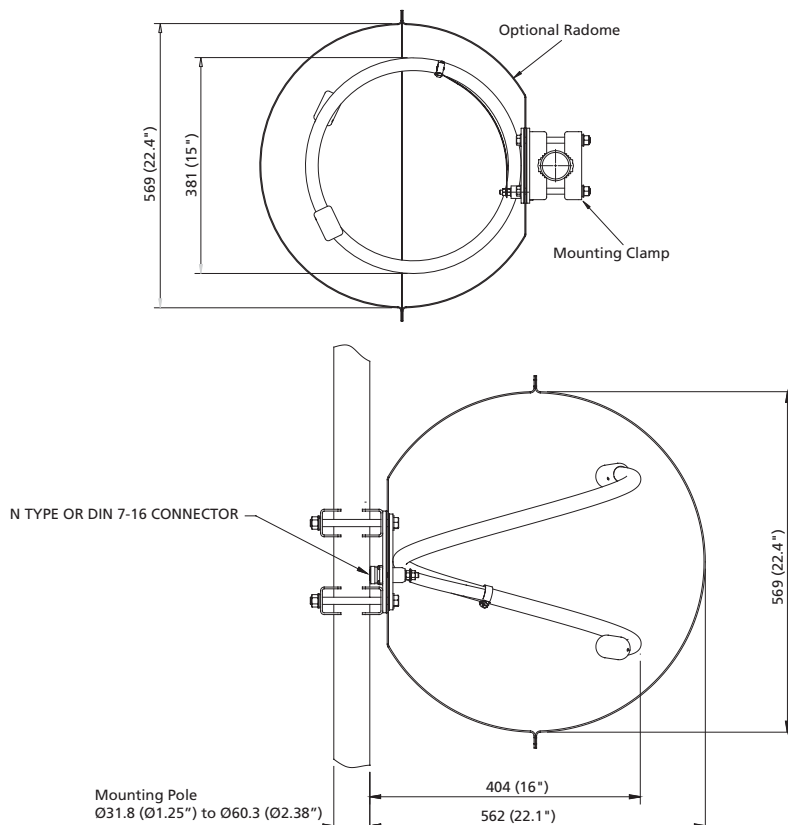
The CPF series of FM antennas are designed for low wind load, low cost, single channel requirements. These antenna elements are circularly polarized with an omnidirectional pattern. A choice of two input connector sizes provides power ratings of 500 W or 2.5 kW per bay. An optional radome fully enclosing the radiating element is also available for sites where icing is likely. The antennas are designed to be sidemounted to a vertical pole and a wide range of mounting brackets are available for this purpose.

- Single channel operation.
- Rugged stainless steel construction.
- Low cost.
- Low windload.
- Power rating of up to 20kW for an 8 bay antenna.
- Optional radome available for icing conditions.
- Optional Input tuner ensures optimum VSWR.
- Parallel (Corporate) feed network provides low downward radiation.

Multiple element arrays are supplied as a complete package including power dividers and distribution cables. An optional input tuner ensures optimum VSWR performance after installation as it enables the effects of tower steelwork to be eliminated. Beam tilt and null fill can be provided on request.



CPF500



CPF Series

SPECIFICATIONS (ALL MODELS)

| | |
|--|---|
| Frequency Range, MHz | 87.5 - 108 |
| Polarization | Circular |
| Circularity, dB | +/- 2dB in free space |
| Return Loss, dB | >20 (typically >26dB) |
| Impedance, ohms | 50 unbalanced |
| Mounting (Standard), mm (in) | 38 to 64 mm diameter mounting pipe (not supplied) |
| Effective Area Side (full antenna), sq m (sq ft) | 0.033 (0.35) - Single Bay |
| Material | Stainless Steel |

| SPECIFICATIONS | CPF500-1 | CPF500-2 | CPF500-3 | CPF500-4 |
|---|-----------------------|---|---|---|
| Number of Levels | 1 | 2 | 3 | 4 |
| Gain per Plane of Polarization, dBd | -3.5 | -0.3 | 1.7 | 3 |
| Input Connector | Single element N type | Single element N type, Array N type; 7/8" EIA | Single element N type, Array N type; 7/8" EIA | Single element N type, Array N type; 7/8" EIA |
| Power Rating, kW | 0.5 | 1.0 (7/8" EIA i/p connector) | 1.5 (7/8" EIA i/p connector) | 2.0 (7/8" EIA i/p connector) |
| Weight, kg (lb) | 4 (9) | 11.3 (25) | 17.2 (38) | 23.1 (51) |
| Effective Area Front (full antenna), sq m (sq ft) | 0.055 (0.59) | 0.11 (1.2) | 0.17 (1.8) | 0.22 (2.4) |

| SPECIFICATIONS | CPF500-6 | CPF500-8 | CPF2500-1 | CPF2500-2 |
|---|---|---|-------------------------|---|
| Number of Levels | 6 | 8 | 1 | 2 |
| Gain per Plane of Polarization, dBd | 4.8 | 6 | -3.5 | -0.3 |
| Input Connector | Single element N type, Array N type; 7/8" EIA | Single element N type, Array N type; 7/8" EIA | Single element 7-16 DIN | Single element 7-16 DIN, Array 7-16 DIN; 1-5/8" EIA |
| Power Rating, kW | 3.0 (7/8" EIA i/p connector) | 4.0 (7/8" EIA i/p connector) | 2.5 | 5.0 (1-5/8" EIA i/p connector) |
| Weight, kg (lb) | 35.3 (78) | 47.2 (104) | 4 (9) | 11.3 (25) |
| Effective Area Front (full antenna), sq m (sq ft) | 0.33 (3.6) | 0.44 (4.8) | 0.055 (0.59) | 0.11 (1.2) |

| SPECIFICATIONS | CPF2500-3 | CPF2500-4 | CPF2500-6 | CPF2500-8 |
|---|---|---|---|---|
| Number of Levels | 3 | 4 | 6 | 8 |
| Gain per Plane of Polarization, dBd | 1.7 | 3 | 4.8 | 6 |
| Input Connector | Single element 7-16 DIN, Array 7-16 DIN; 1-5/8" EIA | Single element 7-16 DIN, Array 7-16 DIN; 1-5/8" EIA | Single element 7-16 DIN, Array 7-16 DIN; 3-1/8" EIA | Single element 7-16 DIN, Array 7-16 DIN; 3-1/8" EIA |
| Power Rating, kW | 7.5 (1-5/8" EIA i/p connector) | 10.0 (1-5/8" EIA i/p connector) | 15.0 (3-1/8" EIA i/p connector) | 20.0 (3-1/8" EIA i/p connector) |
| Weight, kg (lb) | 17.2 (38) | 23.1 (51) | 35.3 (78) | 47.2 (104) |
| Effective Area Front (full antenna), sq m (sq ft) | 0.17 (1.8) | 0.22 (2.4) | 0.33 (3.6) | 0.44 (4.8) |

828 Series

These FM sidemount antennas are designed for FM broadcasting applications which require circular polarization and low windloads.

- Rugged stainless steel construction for maximum corrosion protection
- Low downward radiation
- Various power ratings available
- Mixed polarization
- Broadband operation to facilitate antenna sharing
- 828 and 828HP series pressurized
- 828MP series designed specifically for unpressurized operation
- Low windload to minimize tower or mast costs
- Radomes are an available option for all 828 series
- Temperature range – 40 to + 60 degrees C available

The stainless steel design ensures that the antenna will give years of trouble free performance in the most hostile environments. The higher power series are pressurized to add further environmental protection. The elements will tolerate a degree of light icing but for more severe environments, optional radomes are available for all series. Contact RFS for details.

All 828 series antennas can be arrayed in any number of levels to suit most applications. The parallel feed system facilitates the customization of null fill and beam tilt to suit customer requirements. The standard 828 antenna series is a high power series and is also available in a medium power series, 828MP. There are 3 versions in each series, each with a designed bandwidth of 10 MHz. Additional factory tuning is available to achieve superior return loss specifications. A wideband series of the 828 antenna, 828HP, is also available. This series has a bandwidth covering the entire FM band from 88 to 108 MHz and utilizes half wavelength spacing. The wide variety of possible configurations ensures that the needs of most users will be met in terms of both price and performance.



828HP-8 Antenna Array

SPECIFICATIONS (ALL MODELS)

| | |
|------------------------------|--|
| Frequency Range, MHz | 88 - 108 |
| Polarization | Circular |
| Return Loss, dB | 20 Note#1 |
| Impedance, ohms | 50 unbalanced |
| Mounting (Standard), mm (in) | Brackets for 60mm (2-3/8) pole mount; Brackets for 90mm (3-1/2) pole mount |

828 Series

| SPECIFICATIONS | 828MP-1 | 828MP-2 | 828MP-3 | 828MP-4 |
|---|------------------------------|---|---|---|
| Operating Frequency Ranges, MHz | 88 - 98,94 - 104,98 - 108 | 88 - 98,94 - 104,98 - 108 | 88 - 98,94 - 104,98 - 108 | 88 - 98,94 - 104,98 - 108 |
| Number of Levels | 1 | 2 | 3 | 4 |
| Gain per Plane of Polarization, dBd | -1.8 | 1.31 | 3.08 | 4.06 |
| Input Connector | 7-16 DIN | Single element 7-16 DIN, Array 7-16 DIN; 7/8" EIA; 1-5/8" EIA | Single element 7-16 DIN, Array 7-16 DIN; 7/8" EIA; 1-5/8" EIA | Single element 7-16 DIN, Array 7-16 DIN; 7/8" EIA; 1-5/8" EIA |
| Power Rating, kW | 3 | 4.5 Note#2 | 6 Note#2 | 7.5 Note#2 |
| Weight, kg (lb) | 7.5 (17) Single Bay | 7.5 (17) Single Bay | 7.5 (17) Single Bay | 7.5 (17) Single Bay |
| Effective Area Front (full antenna), sq m (sq ft) | 0.05 (0.54) Single Bay | 0.05 (0.54) Single Bay | 0.05 (0.54) Single Bay | 0.05 (0.54) Single Bay |
| Effective Area Side (full antenna), sq m (sq ft) | 0.19 (2.04) Single Bay | 0.19 (2.04) Single Bay | 0.19 (2.04) Single Bay | 0.19 (2.04) Single Bay |

| SPECIFICATIONS | 828MP-5 | 828MP-6 | 828MP-8 | 828MP-10 |
|---|---|---|---|---|
| Operating Frequency Ranges, MHz | 88 - 98,94 - 104,98 - 108 | 88 - 98,94 - 104,98 - 108 | 88 - 98,94 - 104,98 - 108 | 88 - 98,94 - 104,98 - 108 |
| Number of Levels | 5 | 6 | 8 | 10 |
| Gain per Plane of Polarization, dBd | 5 | 5.77 | 7 | 7.96 |
| Input Connector | Single element 7-16 DIN, Array 7-16 DIN; 7/8" EIA; 1-5/8" EIA | Single element 7-16 DIN, Array 7-16 DIN; 7/8" EIA; 1-5/8" EIA | Single element 7-16 DIN, Array 7-16 DIN; 7/8" EIA; 1-5/8" EIA | Single element 7-16 DIN, Array 7-16 DIN; 7/8" EIA; 1-5/8" EIA |
| Power Rating, kW | 9 Note#2 | 10.5 Note#2 | 13.5 Note#2 | 15 Note#2 |
| Weight, kg (lb) | 7.5 (17) Single Bay | 7.5 (17) Single Bay | 7.5 (17) Single Bay | 7.5 (17) Single Bay |
| Effective Area Front (full antenna), sq m (sq ft) | 0.05 (0.54) Single Bay | 0.05 (0.54) Single Bay | 0.05 (0.54) Single Bay | 0.05 (0.54) Single Bay |
| Effective Area Side (full antenna), sq m (sq ft) | 0.19 (2.04) Single Bay | 0.19 (2.04) Single Bay | 0.19 (2.04) Single Bay | 0.19 (2.04) Single Bay |

| SPECIFICATIONS | 828MP-12 | 828-1 | 828-2 | 828-3 |
|---|---|------------------------------|---|---|
| Operating Frequency Ranges, MHz | 88 - 98,94 - 104,98 - 108 | 88 - 98,94 - 104,98 - 108 | 88 - 98,94 - 104,98 - 108 | 88 - 98,94 - 104,98 - 108 |
| Number of Levels | 12 | 1 | 2 | 3 |
| Gain per Plane of Polarization, dBd | 8.76 | -1.8 | 1.31 | 3.08 |
| Input Connector | Single element 7-16 DIN, Array 7-16 DIN; 7/8" EIA; 1-5/8" EIA | 7/8" EIA | Single element 7/8" EIA, Array 7/8" EIA; 1-5/8" EIA; 3-1/8" EIA | Single element 7/8" EIA, Array 7/8" EIA; 1-5/8" EIA; 3-1/8" EIA |
| Power Rating, kW | 15 Note#2 | 5 | 10 Note#2 | 15 Note#2 |
| Weight, kg (lb) | 7.5 (17) Single Bay | 7.5 (17) Single Bay | 7.5 (17) Single Bay | 7.5 (17) Single Bay |
| Effective Area Front (full antenna), sq m (sq ft) | 0.05 (0.54) Single Bay | 0.05 (0.54) Single Bay | 0.05 (0.54) Single Bay | 0.05 (0.54) Single Bay |
| Effective Area Side (full antenna), sq m (sq ft) | 0.19 (2.04) Single Bay | 0.19 (2.04) Single Bay | 0.19 (2.04) Single Bay | 0.19 (2.04) Single Bay |
| Pressurization Operational, kPa (psi) | | 10 - 35 (1.5 - 5) | 10 - 35 (1.5 - 5) | 10 - 35 (1.5 - 5) |
| Pressurization Test, kPa (psi) | | 100 (15) | 100 (15) | 100 (15) |

Note 1

Arrays are factory tuned for a broadband performance and a return loss of 20dB across the specified bandwidth is achieved. Optional factory tuning for optimum narrow band performance will achieve a 30dB return loss over +/- 500KHz from the specified frequency. Arrays may be supplied un-tuned with a resulting return loss of 17 dB.

Note 2

Array power ratings are limited by the radiator and power divider input connectors used. Typical limits are : 7-16 DIN 3.5kW, 7/8" EIA 5kW, 1-5/8" EIA 10kW and 3-1/8" EIA 40kW

Note 3

Mechanical specifications: For 828MP and 828 the single bay Effective Area Front is 0.05 sq m (0.54 sq ft), Effective Area Side is 0.19 sq m (2.04 sq ft). For 828HP, single bay Effective Area Front is 0.06 sq m (0.65 sq ft), Effective Area Side is 0.25 sq m (2.35 sq ft).

828 Series

| SPECIFICATIONS | 828-4 | 828-5 | 828-6 | 828-8 |
|---|---|---|---|---|
| Operating Frequency Ranges, MHz | 88 - 98,94 - 104,98 - 108 | 88 - 98,94 - 104,98 - 108 | 88 - 98,94 - 104,98 - 108 | 88 - 98,94 - 104,98 - 108 |
| Number of Levels | 4 | 5 | 6 | 8 |
| Gain per Plane of Polarization, dBd | 4.06 | 5 | 5.77 | 7 |
| Input Connector | Single element 7/8" EIA, Array 7/8" EIA; 1-5/8" EIA; 3-1/8" EIA | Single element 7/8" EIA, Array 7/8" EIA; 1-5/8" EIA; 3-1/8" EIA | Single element 7/8" EIA, Array 7/8" EIA; 1-5/8" EIA; 3-1/8" EIA | Single element 7/8" EIA, Array 7/8" EIA; 1-5/8" EIA; 3-1/8" EIA |
| Power Rating, kW | 20 Note#2 | 25 Note#2 | 30 Note#2 | 40 Note#2 |
| Weight, kg (lb) | 7.5 (17) Single Bay | 7.5 (17) Single Bay | 7.5 (17) Single Bay | 7.5 (17) Single Bay |
| Effective Area Front (full antenna), sq m (sq ft) | 0.05 (0.54) Single Bay | 0.05 (0.54) Single Bay | 0.05 (0.54) Single Bay | 0.05 (0.54) Single Bay |
| Effective Area Side (full antenna), sq m (sq ft) | 0.19 (2.04) Single Bay | 0.19 (2.04) Single Bay | 0.19 (2.04) Single Bay | 0.19 (2.04) Single Bay |
| Pressurization Operational, kPa (psi) | 10 - 35 (1.5 - 5) | 10 - 35 (1.5 - 5) | 10 - 35 (1.5 - 5) | 10 - 35 (1.5 - 5) |
| Pressurization Test, kPa (psi) | 100 (15) | 100 (15) | 100 (15) | 100 (15) |

| SPECIFICATIONS | 828-10 | 828-12 | 828HP-2 | 828HP-4 |
|---|---|---|---|---|
| Operating Frequency Ranges, MHz | 88 - 98,94 - 104,98 - 108 | 88 - 98,94 - 104,98 - 108 | 88 - 108 | 88 - 108 |
| Number of Levels | 10 | 12 | 2 | 4 |
| Gain per Plane of Polarization, dBd | 7.96 | 8.76 | -0.1 | 2.61 |
| Input Connector | Single element 7/8" EIA, Array 7/8" EIA; 1-5/8" EIA; 3-1/8" EIA | Single element 7/8" EIA, Array 7/8" EIA; 1-5/8" EIA; 3-1/8" EIA | Single element 7/8" EIA, Array 7/8" EIA; 1-5/8" EIA; 3-1/8" EIA; 4-1/2" EIA | Single element 7/8" EIA, Array 7/8" EIA; 1-5/8" EIA; 3-1/8" EIA; 4-1/2" EIA |
| Power Rating, kW | 50 Note#2 | 50 Note#2 | 10 Note#2 | 20 Note#2 |
| Weight, kg (lb) | 7.5 (17) Single Bay | 7.5 (17) Single Bay | 10 (22) Single Bay | 10 (22) Single Bay |
| Effective Area Front (full antenna), sq m (sq ft) | 0.05 (0.54) Single Bay | 0.05 (0.54) Single Bay | 0.06 (0.65) Single Bay | 0.06 (0.65) Single Bay |
| Effective Area Side (full antenna), sq m (sq ft) | 0.19 (2.04) Single Bay | 0.19 (2.04) Single Bay | 0.25 (2.35) Single Bay | 0.25 (2.35) Single Bay |
| Pressurization Operational, kPa (psi) | 10 - 35 (1.5 - 5) | 10 - 35 (1.5 - 5) | 10 - 35 (1.5 - 5) | 10 - 35 (1.5 - 5) |
| Pressurization Test, kPa (psi) | 100 (15) | 100 (15) | 100 (15) | 100 (15) |

Note 1

Arrays are factory tuned for a broadband performance and a return loss of 20dB across the specified bandwidth is achieved. Optional factory tuning for optimum narrow band performance will achieve a 30dB return loss over +/- 500KHz from the specified frequency. Arrays may be supplied un-tuned with a resulting return loss of 17 dB.

Note 2

Array power ratings are limited by the radiator and power divider input connectors used. Typical limits are : 7-16 DIN 3.5kW, 7/8" EIA 5kW, 1-5/8" EIA 10kW and 3-1/8" EIA 40kW

Note 3

Mechanical specifications: For 828MP and 828 the single bay Effective Area Front is 0.05 sq m (0.54 sq ft), Effective Area Side is 0.19 sq m (2.04 sq ft). For 828HP, single bay Effective Area Front is 0.06 sq m (0.65 sq ft), Effective Area Side is 0.25 sq m (2.35 sq ft).

828 Series

| SPECIFICATIONS | 828HP-6 | 828HP-8 | 828HP-10 | 828HP-12 |
|---|--|--|--|--|
| Operating Frequency Ranges, MHz | 88 - 108 | 88 - 108 | 88 - 108 | 88 - 108 |
| Number of Levels | 6 | 8 | 10 | 12 |
| Gain per Plane of Polarization, dBd | 4.05 | 5.2 | 6.12 | 7.33 |
| Input Connector | Single element 7/8" EIA, Array 7/8"EIA; 1-5/8" EIA; 3-1/8" EIA; 4-1/2" EIA | Single element 7/8" EIA, Array 7/8"EIA; 1-5/8" EIA; 3-1/8" EIA; 4-1/2" EIA | Single element 7/8" EIA, Array 7/8"EIA; 1-5/8" EIA; 3-1/8" EIA; 4-1/2" EIA | Single element 7/8" EIA, Array 7/8"EIA; 1-5/8" EIA; 3-1/8" EIA; 4-1/2" EIA |
| Power Rating, kW | 30 Note#2 | 40 Note#2 | 50 Note#2 | 60 Note#2 |
| Weight, kg (lb) | 10 (22) Single Bay | 10 (22) Single Bay | 10 (22) Single Bay | 10 (22) Single Bay |
| Effective Area Front (full antenna), sq m (sq ft) | 0.06 (0.65) Single Bay | 0.06 (0.65) Single Bay | 0.06 (0.65) Single Bay | 0.06 (0.65) Single Bay |
| Effective Area Side (full antenna), sq m (sq ft) | 0.25 (2.35) Single Bay | 0.25 (2.35) Single Bay | 0.25 (2.35) Single Bay | 0.25 (2.35) Single Bay |
| Pressurization Operational, kPa (psi) | 10 - 35 (1.5 - 5) | 10 - 35 (1.5 - 5) | 10 - 35 (1.5 - 5) | 10 - 35 (1.5 - 5) |
| Pressurization Test, kPa (psi) | 100 (15) | 100 (15) | 100 (15) | 100 (15) |

| SPECIFICATIONS | 828HP-16 |
|---|--|
| Operating Frequency Ranges, MHz | 88 - 108 |
| Number of Levels | 16 |
| Gain per Plane of Polarization, dBd | 8.33 |
| Input Connector | Single element 7/8" EIA, Array 7/8"EIA; 1-5/8" EIA; 3-1/8" EIA; 4-1/2" EIA |
| Power Rating, kW | 70 Note#2 |
| Weight, kg (lb) | 10 (22) Single Bay |
| Effective Area Front (full antenna), sq m (sq ft) | 0.06 (0.65) Single Bay |
| Effective Area Side (full antenna), sq m (sq ft) | 0.25 (2.35) Single Bay |
| Pressurization Operational, kPa (psi) | 10 - 35 (1.5 - 5) |
| Pressurization Test, kPa (psi) | 100 (15) |

Note 1

Arrays are factory tuned for a broadband performance and a return loss of 20dB across the specified bandwidth is achieved. Optional factory tuning for optimum narrow band performance will achieve a 30dB return loss over +/- 500KHz from the specified frequency. Arrays may be supplied un-tuned with a resulting return loss of 17 dB.

Note 2

Array power ratings are limited by the radiator and power divider input connectors used. Typical limits are : 7-16 DIN 3.5kW, 7/8" EIA 5kW, 1-5/8" EIA 10kW and 3-1/8" EIA 40kW

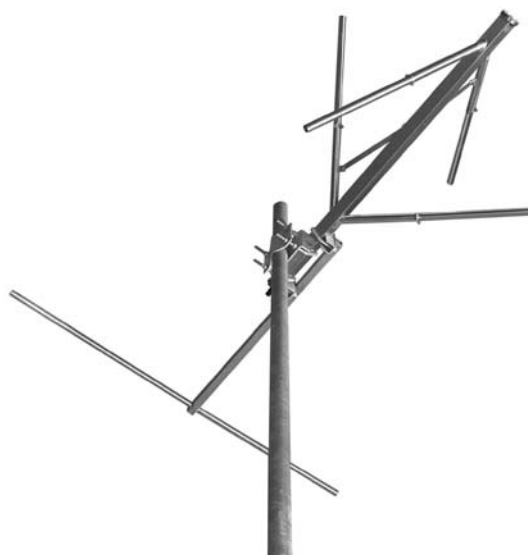
Note 3

Mechanical specifications: For 828MP and 828 the single bay Effective Area Front is 0.05 sq m (0.54 sq ft), Effective Area Side is 0.19 sq m (2.04 sq ft). For 828HP, single bay Effective Area Front is 0.06 sq m (0.65 sq ft), Effective Area Side is 0.25 sq m (2.35 sq ft).

828DA Series

These FM sidemount antennas are designed for FM broadcasting applications which require circular polarization and low windloads.

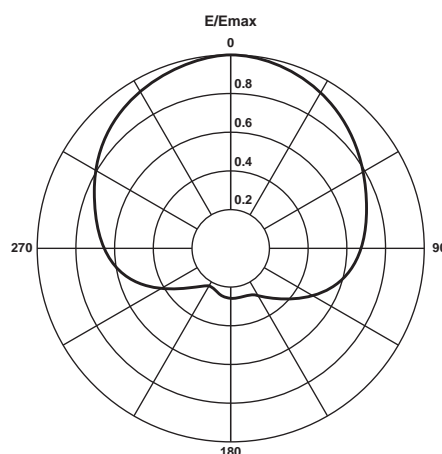
- Directional horizontal radiation pattern
- Low downward radiation
- Rugged stainless steel construction for maximum corrosion protection
- Various power ratings available
- Mixed polarization
- Broadband operation to facilitate antenna sharing
- 828DA and 828HPDA models pressurized
- 828MPDA series designed specifically for unpressurized operation
- Optional optimal array tuning
- Low windload to minimize tower or mast costs
- Radomes are an available option for all 828DA series
- Temperature range – 40 to + 60 degrees C available



828-1DA Antenna

The 828DA series of antennas are circularly polarized Band II antennas with a nominal gain of –1dBd per plane of polarization. The antennas are fitted with a horizontal reflecting element to provide some improvement in the directionality of the horizontal radiation pattern. The stainless steel design ensures that the antenna will give years of trouble free performance in the most hostile environments. The higher power series are pressurized to add further environmental protection. The elements will tolerate a degree of light icing but for more severe environments, optional radomes are available. Contact RFS for details.

All 828DA series antennas can be arrayed in any number of levels to suit most applications. The parallel feed system facilitates the customization of null fill and beam tilt to suit customer requirements. The standard 828DA antenna series is a high power series and is also available in a medium power series, 828MPDA. There are 3 versions in each series, each with a designed bandwidth of 10MHz. Additional factory tuning is available to achieve superior return loss specifications. A wideband series of the 828DA antenna, the 828HPDA, is also available. This series has a bandwidth covering the entire FM band from 88 to 108MHz and utilizes half wavelength spacing. The 828HPDA series antennas are high power arrays. The wide variety of possible configurations ensures that the needs of most users will be met in terms of both price and performance.



Horizontal Radiation Pattern for Combined Horizontal and Vertical Polarization

SPECIFICATIONS (ALL MODELS)

| | |
|------------------------------|--|
| Frequency Range, MHz | 88 - 108 |
| Polarization | Circular |
| Return Loss, dB | 20 Note#1 |
| Impedance, ohms | 50 unbalanced |
| Mounting (Standard), mm (in) | Brackets for 60mm (2-3/8) pole mount; Brackets for 90mm (3-1/2) pole mount |

828DA Series

| SPECIFICATIONS | 828MP-1DA | 828MP-2DA | 828MP-3DA | 828MP-4DA |
|---|------------------------------|---|---|---|
| Operating Frequency Ranges, MHz | 88 - 98,94 - 104,98 - 108 | 88 - 98,94 - 104,98 - 108 | 88 - 98,94 - 104,98 - 108 | 88 - 98,94 - 104,98 - 108 |
| Number of Levels | 1 | 2 | 3 | 4 |
| Gain per Plane of Polarization, dBd | -0.25 | 2.86 | 4.63 | 5.61 |
| Input Connector | 7-16 DIN | Single element 7-16 DIN, Array 7-16 DIN; 7/8" EIA; 1-5/8" EIA | Single element 7-16 DIN, Array 7-16 DIN; 7/8" EIA; 1-5/8" EIA | Single element 7-16 DIN, Array 7-16 DIN; 7/8" EIA; 1-5/8" EIA |
| Power Rating, kW | 3 | 4.5 Note#2 | 6 Note#2 | 7.5 Note#2 |
| Weight, kg (lb) | 12 (27) Single Bay | 12 (27) Single Bay | 12 (27) Single Bay | 12 (27) Single Bay |
| Effective Area Front (full antenna), sq m (sq ft) | 0.05 (0.54) Single Bay | 0.05 (0.54) Single Bay | 0.05 (0.54) Single Bay | 0.05 (0.54) Single Bay |
| Effective Area Side (full antenna), sq m (sq ft) | 0.19 (2.04) Single Bay | 0.19 (2.04) Single Bay | 0.19 (2.04) Single Bay | 0.19 (2.04) Single Bay |

| SPECIFICATIONS | 828MP-5DA | 828MP-6DA | 828MP-8DA | 828MP-10DA |
|---|---|---|---|---|
| Operating Frequency Ranges, MHz | 88 - 98,94 - 104,98 - 108 | 88 - 98,94 - 104,98 - 108 | 88 - 98,94 - 104,98 - 108 | 88 - 98,94 - 104,98 - 108 |
| Number of Levels | 5 | 6 | 8 | 10 |
| Gain per Plane of Polarization, dBd | 6.55 | 7.32 | 8.55 | 9.51 |
| Input Connector | Single element 7-16 DIN, Array 7-16 DIN; 7/8" EIA; 1-5/8" EIA | Single element 7-16 DIN, Array 7-16 DIN; 7/8" EIA; 1-5/8" EIA | Single element 7-16 DIN, Array 7-16 DIN; 7/8" EIA; 1-5/8" EIA | Single element 7-16 DIN, Array 7-16 DIN; 7/8" EIA; 1-5/8" EIA |
| Power Rating, kW | 9 Note#2 | 10.5 Note#2 | 13.5 Note#2 | 15 Note#2 |
| Weight, kg (lb) | 12 (27) Single Bay | 12 (27) Single Bay | 12 (27) Single Bay | 12 (27) Single Bay |
| Effective Area Front (full antenna), sq m (sq ft) | 0.05 (0.54) Single Bay | 0.05 (0.54) Single Bay | 0.05 (0.54) Single Bay | 0.05 (0.54) Single Bay |
| Effective Area Side (full antenna), sq m (sq ft) | 0.19 (2.04) Single Bay | 0.19 (2.04) Single Bay | 0.19 (2.04) Single Bay | 0.19 (2.04) Single Bay |

| SPECIFICATIONS | 828MP-12DA | 828-1DA | 828-2DA | 828-3DA |
|---|---|------------------------------|---|---|
| Operating Frequency Ranges, MHz | 88 - 98,94 - 104,98 - 108 | 88 - 98,94 - 104,98 - 108 | 88 - 98,94 - 104,98 - 108 | 88 - 98,94 - 104,98 - 108 |
| Number of Levels | 12 | 1 | 2 | 3 |
| Gain per Plane of Polarization, dBd | 10.31 | -0.25 | 2.86 | 4.63 |
| Input Connector | Single element 7-16 DIN, Array 7-16 DIN; 7/8" EIA; 1-5/8" EIA | 7/8" EIA | Single element 7/8" EIA, Array 7/8" EIA; 1-5/8" EIA; 3-1/8" EIA | Single element 7/8" EIA, Array 7/8" EIA; 1-5/8" EIA; 3-1/8" EIA |
| Power Rating, kW | 15 Note#2 | 5 | 10 Note#2 | 15 Note#2 |
| Weight, kg (lb) | 12 (27) Single Bay | 12 (27) Single Bay | 12 (27) Single Bay | 12 (27) Single Bay |
| Effective Area Front (full antenna), sq m (sq ft) | 0.05 (0.54) Single Bay | 0.05 (0.54) Single Bay | 0.05 (0.54) Single Bay | 0.05 (0.54) Single Bay |
| Effective Area Side (full antenna), sq m (sq ft) | 0.19 (2.04) Single Bay | 0.19 (2.04) Single Bay | 0.19 (2.04) Single Bay | 0.19 (2.04) Single Bay |
| Pressurization Operational, kPa (psi) | | 10 - 35 (1.5 - 5) | 10 - 35 (1.5 - 5) | 10 - 35 (1.5 - 5) |
| Pressurization Test, kPa (psi) | | 100 (15) | 100 (15) | 100 (15) |

Note 1

Arrays are factory tuned for a broadband performance and a return loss of 20dB across the specified bandwidth is achieved. Optional factory tuning for optimum narrow band performance will achieve a 30dB return loss over +/- 500KHz from the specified frequency. Arrays may be supplied un-tuned with a resulting return loss of 17 dB.

Note 2

Array power ratings are limited by the radiator and power divider input connectors used. Typical limits are : 7-16 DIN 3.5kW, 7/8" EIA 5kW, 1-5/8" EIA 10kW and 3-1/8" EIA 40kW

Note 3

Mechanical specifications: For 828MP and 828 the single bay Effective Area Front is 0.05 sq m (0.54 sq ft), Effective Area Side is 0.19 sq m (2.04 sq ft). For 828HP, single bay Effective Area Front is 0.06 sq m (0.65 sq ft), Effective Area Side is 0.25 sq m (2.35 sq ft).

Band II (VHF) FM Sidemount Antennas

88 - 108 MHz

828DA Series

| SPECIFICATIONS | 828-4DA | 828-5DA | 828-6DA | 828-8DA |
|---|---|---|---|---|
| Operating Frequency Ranges, MHz | 88 - 98,94 - 104,98 - 108 | 88 - 98,94 - 104,98 - 108 | 88 - 98,94 - 104,98 - 108 | 88 - 98,94 - 104,98 - 108 |
| Number of Levels | 4 | 5 | 6 | 8 |
| Gain per Plane of Polarization, dBd | 5.61 | 6.55 | 7.32 | 8.55 |
| Input Connector | Single element 7/8" EIA, Array 7/8" EIA; 1-5/8" EIA; 3-1/8" EIA | Single element 7/8" EIA, Array 7/8" EIA; 1-5/8" EIA; 3-1/8" EIA | Single element 7/8" EIA, Array 7/8" EIA; 1-5/8" EIA; 3-1/8" EIA | Single element 7/8" EIA, Array 7/8" EIA; 1-5/8" EIA; 3-1/8" EIA |
| Power Rating, kW | 20 Note#2 | 25 Note#2 | 30 Note#2 | 40 Note#2 |
| Weight, kg (lb) | 12 (27) Single Bay | 12 (27) Single Bay | 12 (27) Single Bay | 12 (27) Single Bay |
| Effective Area Front (full antenna), sq m (sq ft) | 0.05 (0.54) Single Bay | 0.05 (0.54) Single Bay | 0.05 (0.54) Single Bay | 0.05 (0.54) Single Bay |
| Effective Area Side (full antenna), sq m (sq ft) | 0.19 (2.04) Single Bay | 0.19 (2.04) Single Bay | 0.19 (2.04) Single Bay | 0.19 (2.04) Single Bay |
| Pressurization Operational, kPa (psi) | 10 - 35 (1.5 - 5) | 10 - 35 (1.5 - 5) | 10 - 35 (1.5 - 5) | 10 - 35 (1.5 - 5) |
| Pressurization Test, kPa (psi) | 100 (15) | 100 (15) | 100 (15) | 100 (15) |

| SPECIFICATIONS | 828-10DA | 828-12DA | 828HP-2DA | 828HP-4DA |
|---|---|---|---|---|
| Operating Frequency Ranges, MHz | 88 - 98,94 - 104,98 - 108 | 88 - 98,94 - 104,98 - 108 | 88 - 108 | 88 - 108 |
| Number of Levels | 10 | 12 | 2 | 4 |
| Gain per Plane of Polarization, dBd | 9.51 | 10.31 | 1.45 | 4.16 |
| Input Connector | Single element 7/8" EIA, Array 7/8" EIA; 1-5/8" EIA; 3-1/8" EIA | Single element 7/8" EIA, Array 7/8" EIA; 1-5/8" EIA; 3-1/8" EIA | Single element 7/8" EIA, Array 7/8" EIA; 1-5/8" EIA; 3-1/8" EIA; 4-1/2" EIA | Single element 7/8" EIA, Array 7/8" EIA; 1-5/8" EIA; 3-1/8" EIA; 4-1/2" EIA |
| Power Rating, kW | 50 Note#2 | 50 Note#2 | 10 Note#2 | 20 Note#2 |
| Weight, kg (lb) | 12 (27) Single Bay | 12 (27) Single Bay | 14.5 (32) Single Bay | 14.5 (32) Single Bay |
| Effective Area Front (full antenna), sq m (sq ft) | 0.05 (0.54) Single Bay | 0.05 (0.54) Single Bay | 0.06 (0.65) Single Bay | 0.06 (0.65) Single Bay |
| Effective Area Side (full antenna), sq m (sq ft) | 0.19 (2.04) Single Bay | 0.19 (2.04) Single Bay | 0.25 (2.35) Single Bay | 0.25 (2.35) Single Bay |
| Pressurization Operational, kPa (psi) | 10 - 35 (1.5 - 5) | 10 - 35 (1.5 - 5) | 10 - 35 (1.5 - 5) | 10 - 35 (1.5 - 5) |
| Pressurization Test, kPa (psi) | 100 (15) | 100 (15) | 100 (15) | 100 (15) |

Note 1

Arrays are factory tuned for a broadband performance and a return loss of 20dB across the specified bandwidth is achieved. Optional factory tuning for optimum narrow band performance will achieve a 30dB return loss over +/- 500KHz from the specified frequency. Arrays may be supplied un-tuned with a resulting return loss of 17 dB.

Note 2

Array power ratings are limited by the radiator and power divider input connectors used. Typical limits are : 7-16 DIN 3.5kW, 7/8" EIA 5kW, 1-5/8" EIA 10kW and 3-1/8" EIA 40kW

Note 3

Mechanical specifications: For 828MP and 828 the single bay Effective Area Front is 0.05 sq m (0.54 sq ft), Effective Area Side is 0.19 sq m (2.04 sq ft). For 828HP, single bay Effective Area Front is 0.06 sq m (0.65 sq ft), Effective Area Side is 0.25 sq m (2.35 sq ft).

828DA Series

| SPECIFICATIONS | 828HP-6DA | 828HP-8DA | 828HP-10DA | 828HP-12DA |
|---|---|---|---|---|
| Operating Frequency Ranges, MHz | 88 - 108 | 88 - 108 | 88 - 108 | 88 - 108 |
| Number of Levels | 6 | 8 | 10 | 12 |
| Gain per Plane of Polarization, dBd | 5.6 | 6.75 | 7.67 | 8.88 |
| Input Connector | Single element 7/8" EIA, Array 7/8" EIA; 1-5/8" EIA; 3-1/8" EIA; 4-1/2" EIA | Single element 7/8" EIA, Array 7/8" EIA; 1-5/8" EIA; 3-1/8" EIA; 4-1/2" EIA | Single element 7/8" EIA, Array 7/8" EIA; 1-5/8" EIA; 3-1/8" EIA; 4-1/2" EIA | Single element 7/8" EIA, Array 7/8" EIA; 1-5/8" EIA; 3-1/8" EIA; 4-1/2" EIA |
| Power Rating, kW | 30 Note#2 | 40 Note#2 | 50 Note#2 | 60 Note#2 |
| Weight, kg (lb) | 14.5 (32) Single Bay | 14.5 (32) Single Bay | 14.5 (32) Single Bay | 14.5 (32) Single Bay |
| Effective Area Front (full antenna), sq m (sq ft) | 0.06 (0.65) Single Bay | 0.06 (0.65) Single Bay | 0.06 (0.65) Single Bay | 0.06 (0.65) Single Bay |
| Effective Area Side (full antenna), sq m (sq ft) | 0.25 (2.35) Single Bay | 0.25 (2.35) Single Bay | 0.25 (2.35) Single Bay | 0.25 (2.35) Single Bay |
| Pressurization Operational, kPa (psi) | 10 - 35 (1.5 - 5) | 10 - 35 (1.5 - 5) | 10 - 35 (1.5 - 5) | 10 - 35 (1.5 - 5) |
| Pressurization Test, kPa (psi) | 100 (15) | 100 (15) | 100 (15) | 100 (15) |

| SPECIFICATIONS | 828HP-16DA |
|---|---|
| Operating Frequency Ranges, MHz | 88 - 108 |
| Number of Levels | 16 |
| Gain per Plane of Polarization, dBd | 9.88 |
| Input Connector | Single element 7/8" EIA, Array 7/8" EIA; 1-5/8" EIA; 3-1/8" EIA; 4-1/2" EIA |
| Power Rating, kW | 70 Note#2 |
| Weight, kg (lb) | 14.5 (32) Single Bay |
| Effective Area Front (full antenna), sq m (sq ft) | 0.06 (0.65) Single Bay |
| Effective Area Side (full antenna), sq m (sq ft) | 0.25 (2.35) Single Bay |
| Pressurization Operational, kPa (psi) | 10 - 35 (1.5 - 5) |
| Pressurization Test, kPa (psi) | 100 (15) |

Note 1

Arrays are factory tuned for a broadband performance and a return loss of 20dB across the specified bandwidth is achieved. Optional factory tuning for optimum narrow band performance will achieve a 30dB return loss over +/- 500KHz from the specified frequency. Arrays may be supplied un-tuned with a resulting return loss of 17 dB.

Note 2

Array power ratings are limited by the radiator and power divider input connectors used. Typical limits are : 7-16 DIN 3.5kW, 7/8" EIA 5kW, 1-5/8" EIA 10kW and 3-1/8" EIA 40kW

Note 3

Mechanical specifications: For 828MP and 828 the single bay Effective Area Front is 0.05 sq m (0.54 sq ft), Effective Area Side is 0.19 sq m (2.04 sq ft). For 828HP, single bay Effective Area Front is 0.06 sq m (0.65 sq ft), Effective Area Side is 0.25 sq m (2.35 sq ft).

818 Series

These vertically polarized antennas for FM broadcasting applications are intended for use where low wind loadings are required. They are designed to be sidemounted to a tower leg or pole and optional mounting brackets are available for this purpose.

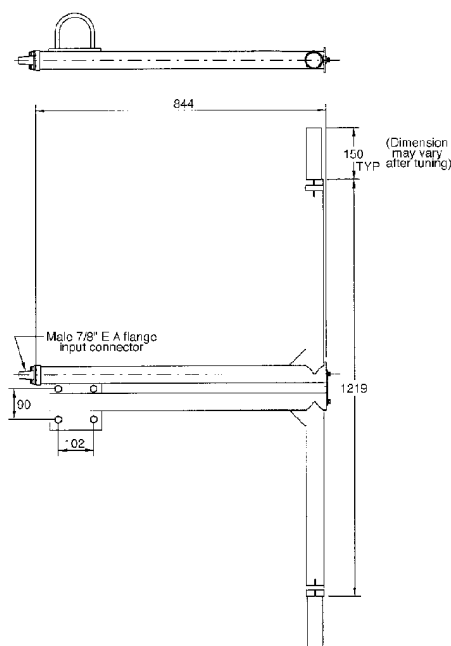
- Rugged construction for maximum corrosion protection
- Broadband operation
- Multichannel use if required
- Optional pressurization
- Low windload to minimize tower or mast costs
- Vertical polarization
- Temperature range -40 to +60 degrees C available

The 818 series are fabricated from stainless steel and will handle up to 5kW per bay.

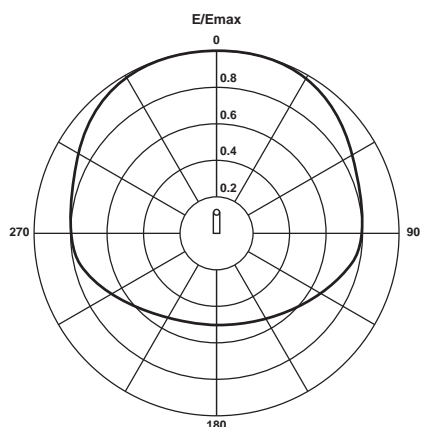
Multiple element arrays are supplied as a complete package including power dividers and distribution cables. An optional input tuner ensures optimum VSWR performance after installation as it enables the effects of tower steelwork to be eliminated. Beam tilt and null fill can be provided on request. The 818 series can be arrayed in multiple bays as required.



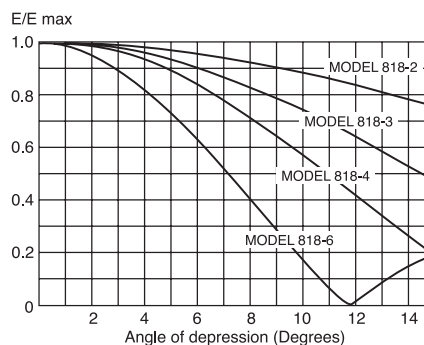
818-4



818-1 Antenna



Azimuth Radiation Pattern (Typical)



Vertical Radiation Pattern

818 Series

SPECIFICATIONS (ALL MODELS)

| | |
|--|--|
| Frequency Range, MHz | 87.5 - 108 |
| Polarization | Vertical |
| Azimuth Radiation Pattern | Omni directional + 3 dB Note#1 |
| Return Loss, dB | Typically 20 over 6MHz bandwidth . Tunable within band |
| Impedance, ohms | 50 unbalanced |
| Dimensions (Height or Length), cm (in) | 151(59-1/2) Single antenna |
| Dimensions (Width), cm (in) | 6 (2-3/8) Single antenna |
| Dimensions (Depth), cm (in) | 84 (33-1/8) Single antenna |
| Mounting (Standard), mm (in) | Brackets for clamp diameter 43 - 76mm (1-3/4 - 3) |
| Pressurization Operational, kPa (psi) | 10 - 35 (1.5 - 5) 7/8" EIA Version |
| Pressurization Test, kPa (psi) | 100 (15) 7/8" EIA Version |

| SPECIFICATIONS | 818-1 | 818-2 | 818-3 | 818-4 |
|---|---------------------------|---|-------------------------------------|--|
| Nominal Gain (Mid-band), dBd | 1.94 | 4.94 | 6.64 | 7.94 |
| Input Connector | 7-16 DIN; 7/8" EIA Flange | 7-16 DIN; 7/8" EIA Flange ; 1-5/8" EIA Flange | 7/8" EIA Flange ; 1-5/8" EIA Flange | 7/8" EIA Flange ; 1-5/8" EIA Flange; 3-1/8" EIA Flange |
| Power Rating, kW | 5 Note#2 | 10 Note#2 | 15 Note#2 | 20 Note#2 |
| Weight, kg (lb) | 11 (24) | 38 (84) | 60 (132) | 82 (181) |
| Effective Area Front (full antenna), sq m (sq ft) | 0.20 (2.15) Note#3 | 0.40 (4.3) Note#3 | 0.60 (6.5) Note#3 | 0.80 (8.6) Note#3 |
| Effective Area Power Divider, sq m (sq ft) | Note#3 | 0.09 (1.0) Note#3 | 0.13 (1.4) Note#3 | 0.13 (1.4) Note#3 |
| Wind Load @ 50 m/sec Front, kN (lb) | 0.24 (50) Note#5 | 0.58 (130) Note#4 #5 | 0.87 (196) Note#4 #5 | 1.10 (247) Note#4 #5 |
| SPECIFICATIONS | 818-6 | | | |
| Nominal Gain (Mid-band), dBd | 9.74 | | | |
| Input Connector | 3 1/8" EIA Flange | | | |
| Power Rating, kW | 30 Note#2 | | | |
| Weight, kg (lb) | 135 (298) | | | |
| Effective Area Front (full antenna), sq m (sq ft) | 1.00 (1.08) Note#3 | | | |
| Effective Area Power Divider, sq m (sq ft) | 0.25 (2.7) Note#3 | | | |
| Wind Load @ 50 m/sec Front, kN (lb) | 1.48 (330) Note#4 #5 | | | |

Note 1

When antenna is mounted on a mast/tower with a face width of less than 150mm (5.9").

Note 2

Input power is limited to 5kW if a 7/8" connector is used.

Note 3

Connecting cables are not included in calculations - 0.03sq m. per metre length should be allowed.

Note 4

Power divider included and considered adjacent to antennas.

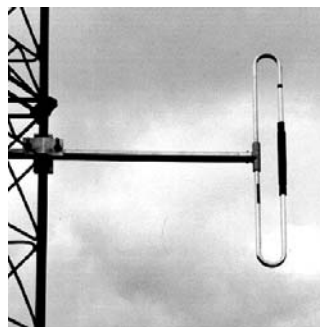
Note 5

Calculated in accordance with AS1170-1981, Part 2 "SAA Loading Code - Wind Forces".

SL1 Series

These vertically polarized antennas for FM broadcasting applications are intended for use where low wind loadings are required. They are designed to be sidemounted to a tower leg or pole and optional mounting brackets are available for this purpose.

- Rugged construction for maximum corrosion protection
- Broadband operation
- Multichannel use if required
- Low windload to minimize tower or mast costs
- Vertical polarization

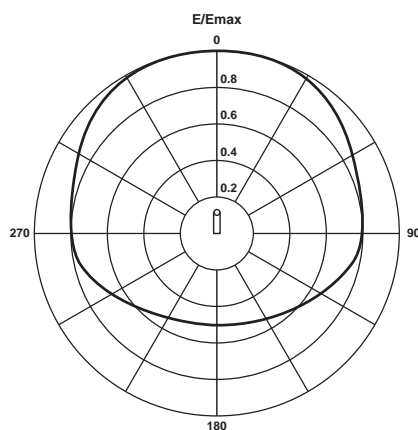


SL1

The SL1 series is intended for low power applications, with a maximum of 500W input power. These versions cover the full FM band without adjustment, although factory optimization on the frequencies of operation is possible. SL1 antennas are constructed of heavy gauge, corrosion resistant aluminum tubing (6000 series) and are extremely robust whilst having very low weights and wind loads. A variety of mounting clamps are available to facilitate mounting to most tubular or lattice structures.

Multiple element arrays are supplied as a complete package including power dividers and distribution cables. An optional input tuner ensures optimum VSWR performance after installation as it enables the effects of tower steelwork to be eliminated. Beam tilt and null fill can be provided on request.

| SPECIFICATIONS | SL1-1 | SL1-2 | SL1-4 |
|---|--------------------------------------|--------------------------------------|--------------------------------------|
| Frequency Range, MHz | 87.5 - 108 | 87.5 - 108 | 87.5 - 108 |
| Polarization | Vertical | Vertical | Vertical |
| Nominal Gain (Mid-band), dBd | 0 | 3 | 6 |
| Return Loss, dB | Typically 17 over 87.5 - 108MHz band | Typically 17 over 87.5 - 108MHz band | Typically 17 over 87.5 - 108MHz band |
| Input Connector | N type | N type | N type |
| Power Rating, kW | 0.5 | 0.5 | 0.5 |
| Impedance, ohms | 50 unbalanced | 50 unbalanced | 50 unbalanced |
| Weight, kg (lb) | 3.5 (7.7) | 10 (22) | 24 (53) |
| Dimensions (Height or Length), cm (in) | 130 (51) | 390 (154) | 600 (236) |
| Effective Area Front (full antenna), sq m (sq ft) | 0.2 (2.15) | 0.45 (4.8) | 0.87 (9.4) |



Azimuth Radiation Pattern (Typical)

902CP Series

These FM Yagi antennas are designed for FM broadcasting applications which require circular or elliptical polarization and low windload.

- The 902CP series have been developed to provide broadband operation over the range 87.5 to 108MHz. This provides broadcasters with the advantage of sharing antenna systems and reducing establishment costs.

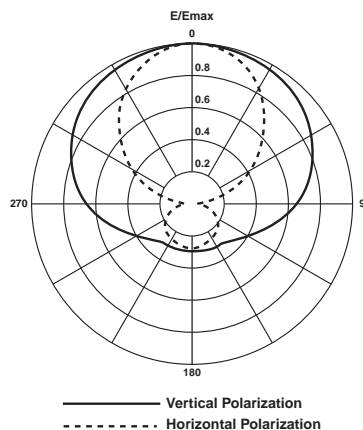
The 902CP antenna elements are of stainless steel construction thus guaranteeing long life and maintenance free operation.

The antenna can be designed for any number of levels and is designed for easy sidemounting installation. Tower or mast costs are also minimized because of the low antenna windload. Multiple arrays are supplied as a complete package including 50 ohm flexible interconnecting cables and an appropriate power divider.



902CP

| SPECIFICATIONS | 902CP |
|---|---|
| Frequency Range, MHz | 87.5 - 108 |
| Polarization | Circular, Elliptical |
| Gain per Plane of Polarization, dBd | 1-Bay 1.0; 2-Bay 4.0; 3-Bay 5.8; 4-Bay 7.3; 6-Bay 9.2; 8-Bay 10.8 |
| Return Loss, dB | > 20 |
| Input Connector | 2 x 7/8" EIA Flange |
| Power Rating per Input, kW | 1-Bay 5; 2-Bay 10; 3-Bay 15; 4-Bay 20; 6-Bay 30; 8-Bay 40 |
| Impedance, ohms | 50 unbalanced |
| Weight, kg (lb) | 23 (51) Single Bay |
| Mounting (Standard), mm (in) | Suitable for 60mm (2-3/8) or 90mm (3-1/2) OD pole |
| Effective Area Front (full antenna), sq m (sq ft) | 0.34 (3.66) |
| Effective Area Side (full antenna), sq m (sq ft) | 0.30 (3.23) |
| Wind Load @ 50 m/sec Front, kN (lb) | 0.5 (100) |



Horizontal Radiation Patterns