TECNICAL BOOKLET ANTENNES

amateur radio antennas

50/51 MHz antenna

144/146 MHz antennas

Pro XL 144/146 MHz antennas

430/440 MHz antennas

Pro XL 430/440 MHz antennas

Patch 430/440 MHz antenna

144/146 & 430/440 MHz antennas

1250/1300 MHz antennas

Patch 1250/1300 MHz antenna

2300/2450 MHz antennas

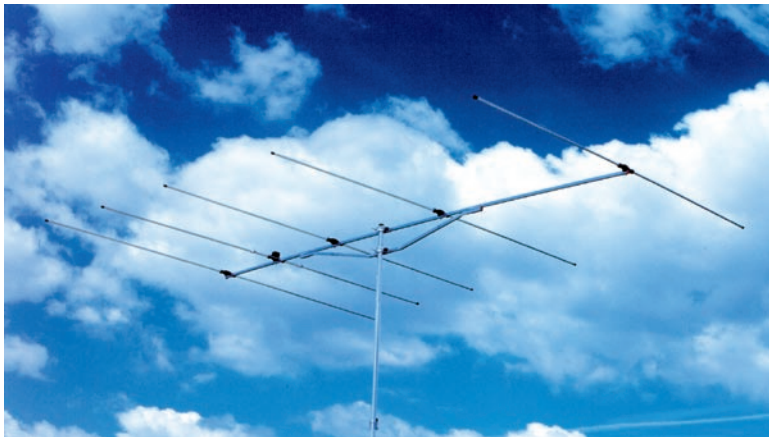
Patch 2300/2450 MHz antennas

2 and 4 port power splitters

5 elements Yagi antenna

50 to 51 MHz

Part Nr. 220505



Electrical data

Radiation at 50 MHz

Effective electrical length ..... : 0.57 λ
Isotropic gain ..... : 10.1 dBi
Aperture angle @ -3 dB
- E-plane ..... : 2 x 27.5°
- H-plane ..... : 2 x 37.5°

First side lobe set
- E-plane ..... : None
- H-plane ..... : None

Rear protection ..... : - 23.8 dB
Average stray radiation
- E-plane ..... : - 30 dB
- H-plane ..... : - 18 dB

Bandwidth

Gain @ -1 dB ..... : 48 to 52 MHz
Nominal impedance ..... : 50 Ω
Impedance match bandwidth @ SWR <1.3/1..... : 49.9 to 50.5 MHz
Acceptable RF power (continous duty) ..... : 500 W

Array of 2 or 4 antennas

(optimized stacking distance. from center to center of elements. for minimal side lobe radiation)

- E plane - Electrical distance ..... : 0.93 λ
  - Pratical distance ..... : 5.58 m
- H plane - Electrical distance ..... : 0.75 λ
  - Pratical distance ..... : 4.50 m

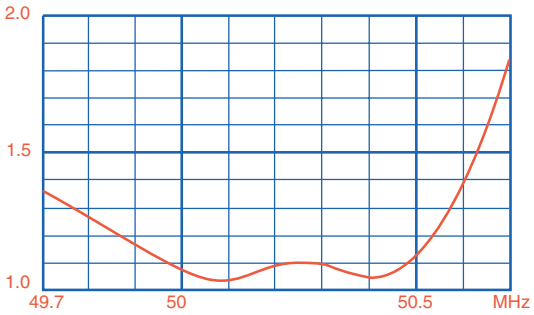
Mechanical data

Connector ..... : Bracket and terminal
Overall length ..... : 3.45 m
Mass ..... : 4.9 kg
Effective wind load
- Horizontal polarization ..... : 0.13 m²
- Vertical polarization ..... : 0.35 m²

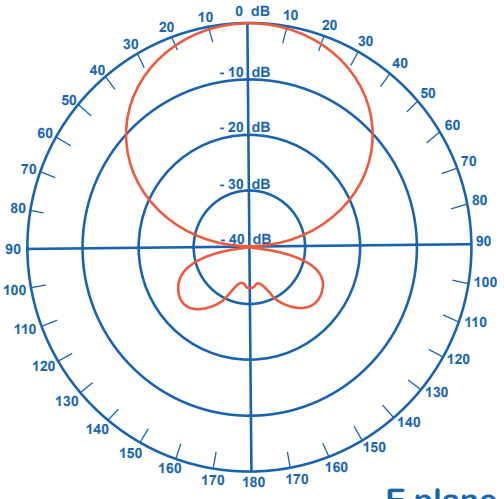
Approximate wind load (25 m/s - 55 mph)
- Horizontal polarization ..... : 4.9 daN
- Vertical polarization ..... : 13.2 daN

Approximate wind load (45 m/s - 100 mph)
- Horizontal polarization ..... : 15.9 daN
- Vertical polarization ..... : 42.8 daN

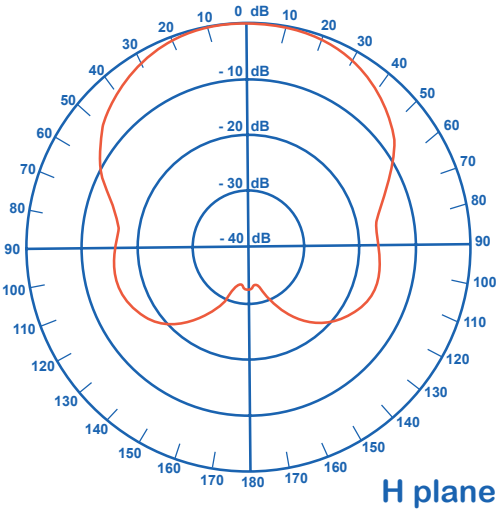
SWR curve



Radiation patterns



E plane

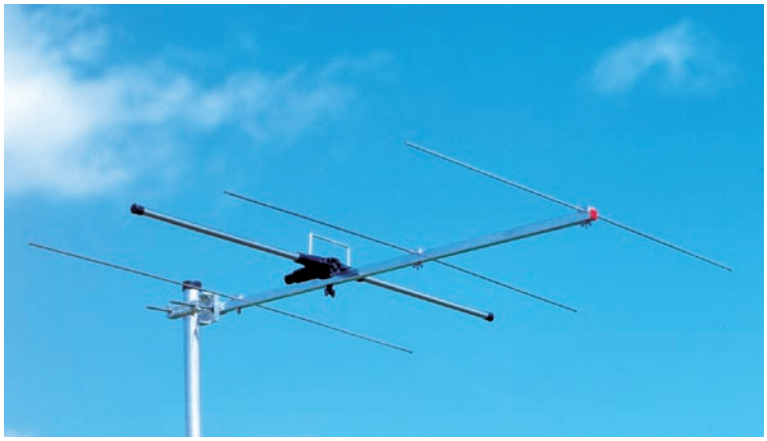


H plane

4 elements Yagi antenna

144 to 146 MHz

Part Nr. 220804



Electrical data

Radiation at 144.5 MHz

Effective electrical length ..... : 0.375 λ
Isotropic gain ..... : 9.1 dBi
Aperture angle @ -3 dB
- E-plane ..... : 2 x 29.3°
- H-plane ..... : 2 x 43.2°

First side lobe set
- E-plane ..... : None
- H-plane ..... : None

Rear protection ..... : - 16 dB
Average stray radiation
- E-plane ..... : - 31 dB
- H-plane ..... : - 21 dB

Bandwidth

Gain @ -1 dB ..... : 142 to 149 MHz
Nominal impedance ..... : 50 Ω
Impedance match bandwidth @ SWR <1.3/1..... : 143 to 147 MHz
Acceptable RF power (continous duty) ..... : 1000 W

Array of 2 or 4 antennas

(optimized stacking distance. from center to center of elements. for minimal side lobe radiation)

- E plane - Electrical distance ..... : 0.85 λ
  - Pratical distance ..... : 1.76 m
- H plane - Electrical distance ..... : 0.85 λ
  - Pratical distance ..... : 1.76 m

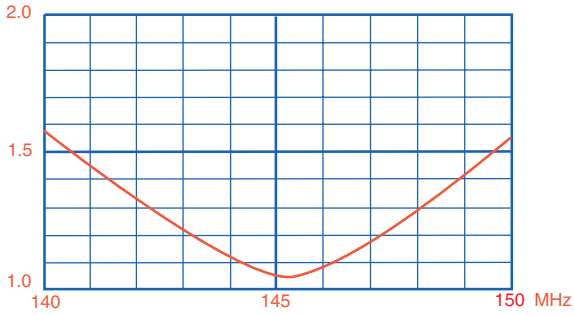
Mechanical data

Connector ..... : N
Overall length ..... : 0.93 m
Mass ..... : 1 kg
Effective wind load
- Horizontal polarization ..... : 0.02 m²
- Vertical polarization ..... : 0.05 m²

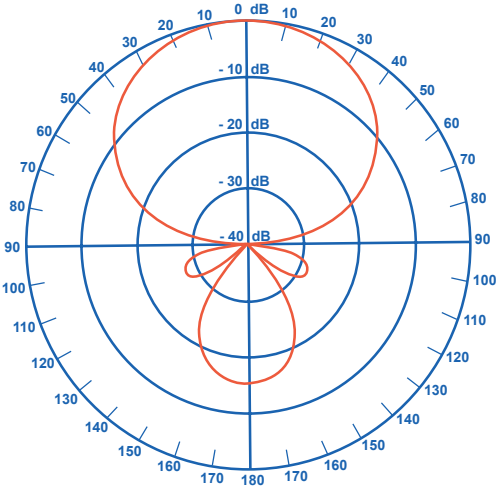
Approximate wind load (25 m/s - 55 mph)
- Horizontal polarization ..... : 0.8 daN
- Vertical polarization ..... : 2.4 daN

Approximate wind load (45 m/s - 100 mph)
- Horizontal polarization ..... : 2 daN
- Vertical polarization ..... : 6.5 daN

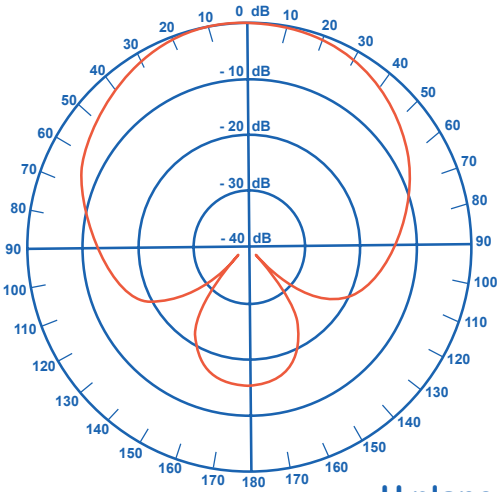
SWR curve



Radiation patterns



E plane



H plane

2x4 elements Yagi antenna

144 to 146 MHz

Part Nr. 220808

Electrical data

Radiation at 144.5 MHz

Effective electrical length .....: 0.375 λ
Isotropic gain .....: 8.9 dBi
Aperture angle @ -3 dB
- E-plane ..... : 2 x 29.3°
- H-plane ..... : 2 x 43.2°

First side lobe set
- E-plane ..... : None
- H-plane ..... : None

Rear protection ..... : - 16 dB
Average stray radiation
- E-plane ..... : - 31 dB
- H-plane ..... : - 21 dB

Bandwidth

Gain @ -1 dB .....: 142 to 149 MHz
Nominal impedance ..... : 50 Ω
Impedance match bandwidth @ SWR <1.3/1..... : 143 to 147 MHz
Acceptable RF power (continous duty) .....: 1000 W
Required phase delay between frontmost and rearmost driven element .....: 72°

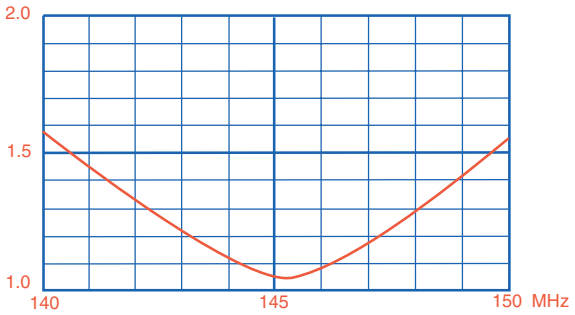
Array of 2 or 4 antennas

(optimized stacking distance. from center to center of elements. for minimal side lobe radiation)
- Electrical distance .....: 0.85 λ
- Pratical distance ..... : 1.76 m

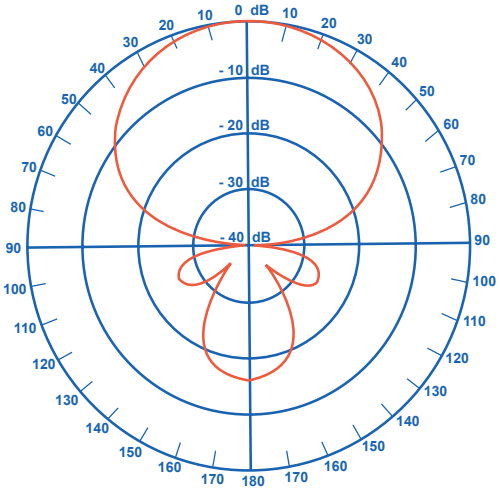
Mechanical data

Connector ..... : N
Overall length ..... : 1.03 m
Mass ..... : 1.2 kg
Effective wind load..... : 0.03 m²
Approximate wind load (25 m/s - 55 mph) ..... : 2.0 daN
Approximate wind load (45 m/s - 100 mph) ..... : 6.5 daN

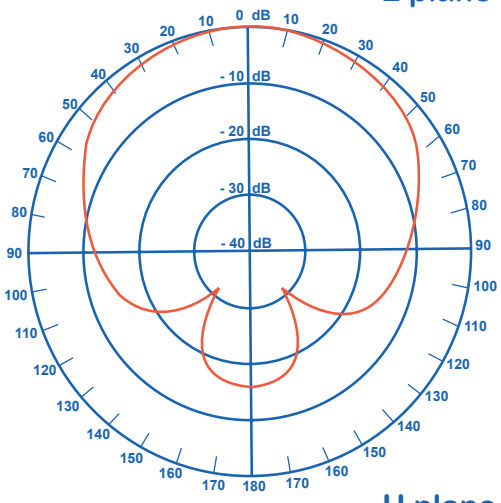
SWR curve



Radiation patterns



E plane

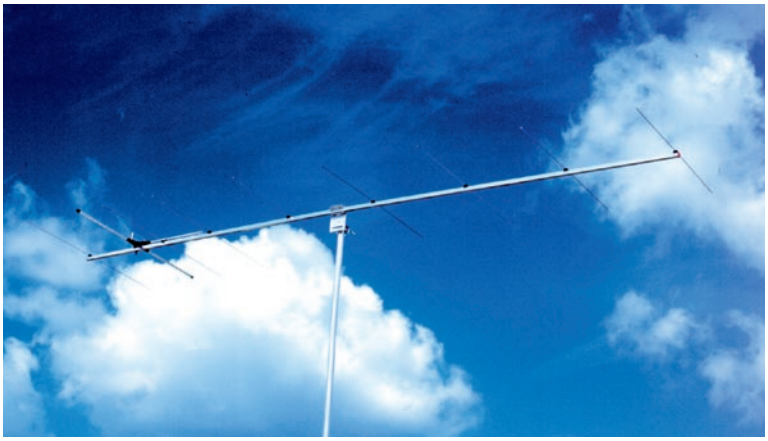


H plane

9 elements Yagi antenna

144 to 146 MHz

Part Nr. 220809



Electrical data

Radiation at 144.5 MHz

Effective electrical length ..... : 1.65 λ
Isotropic gain ..... : 13.1 dBi
Aperture angle @ -3 dB
- E-plane ..... : 2 x 20.2°
- H-plane ..... : 2 x 23°

First side lobe set
- E-plane ..... : - 20.5 dB @ 54°
- H-plane ..... : - 13.6 dB @ 58°

Rear protection ..... : - 19.8 dB
Average stray radiation
- E-plane ..... : - 35 dB
- H-plane ..... : - 24 dB

Bandwidth

Gain @ -1 dB ..... : 140 to 148 MHz
Nominal impedance ..... : 50 Ω
Impedance match bandwidth @ SWR <1.3/1..... : 143.4 to 146.2 MHz
Acceptable RF power (continous duty) ..... : 1000 W

Array of 2 or 4 antennas

(optimized stacking distance. from center to center of elements. for minimal side lobe radiation)

- E plane - Electrical distance ..... : 1.33 λ
  - Pratical distance ..... : 2.77 m
- H plane - Electrical distance ..... : 1.33 λ
  - Pratical distance ..... : 2.77 m

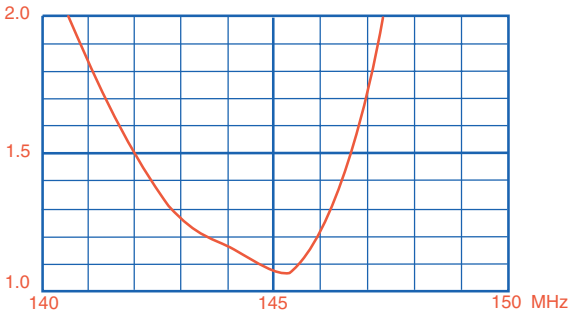
Mechanical data

Connector ..... : N
Overall length ..... : 3.47 m
Mass ..... : 3.0 kg
Effective wind load
- Horizontal polarization ..... : 0.10 m²
- Vertical polarization ..... : 0.15 m²

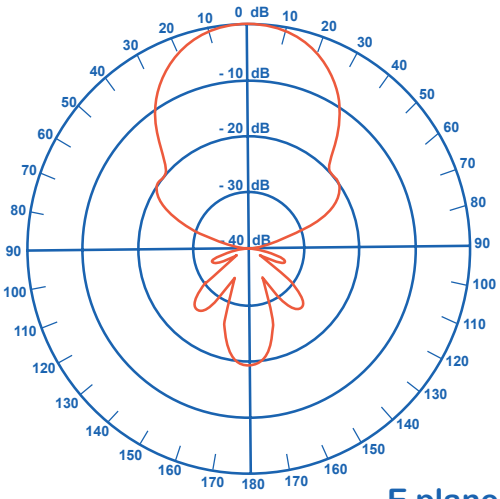
Approximate wind load (25 m/s - 55 mph)
- Horizontal polarization ..... : 4.1 daN
- Vertical polarization ..... : 6.1 daN

Approximate wind load (45 m/s - 100 mph)
- Horizontal polarization ..... : 13.2 daN
- Vertical polarization ..... : 19.7 daN

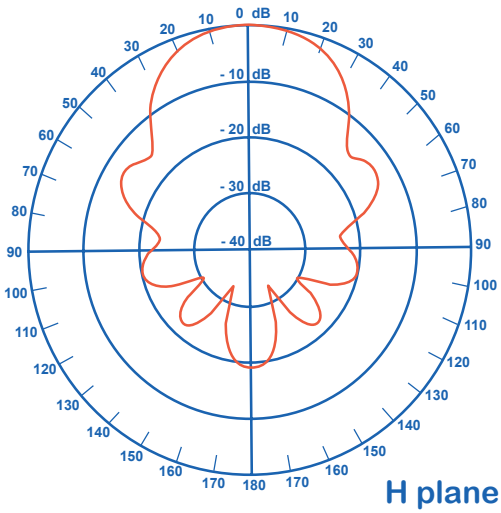
SWR curve



Radiation patterns



E plane

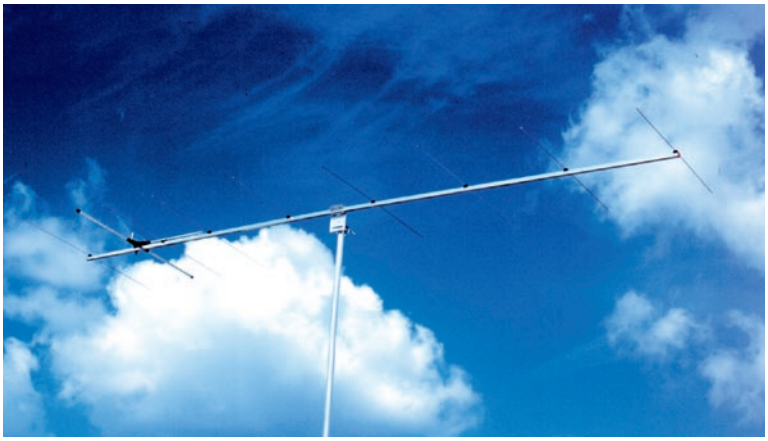


H plane

9 elements portable yagi antenna

144 to 146 MHz

Part Nr. 220089



Electrical data

Radiation at 144.5 MHz

Effective electrical length .....: 1.65 λ
Isotropic gain .....: 13.1 dBi
Aperture angle @ -3 dB
- E-plane ..... : 2 x 20.2°
- H-plane ..... : 2 x 23°

First side lobe set
- E-plane ..... : - 20.5 dB @ 54°
- H-plane ..... : - 13.6 dB @ 58°

Rear protection ..... : - 19.8 dB
Average stray radiation
- E-plane ..... : - 35 dB
- H-plane ..... : - 24 dB

Bandwidth

Gain @ -1 dB .....: 140 to 148 MHz
Nominal impedance ..... : 50 Ω
Impedance match bandwidth @ SWR <1.3/1..... : 143.4 to 146.2 MHz
Acceptable RF power (continous duty) .....: 1000 W

Array of 2 or 4 antennas

(optimized stacking distance. from center to center of elements. for minimal side lobe radiation)

- E plane - Electrical distance ..... : 1.33 λ
- Pratical distance ..... : 2.77 m
- H plane - Electrical distance ..... : 1.33 λ
- Pratical distance ..... : 2.77 m

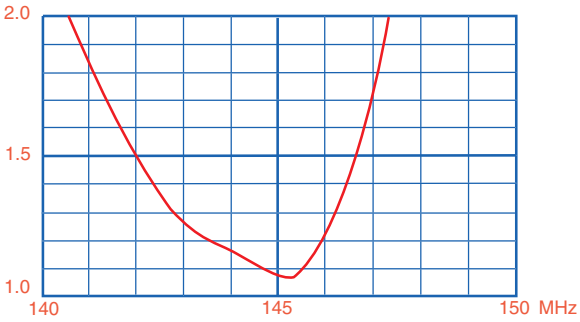
Mechanical data

Connector ..... : N
Overall length ..... : 3.47 m
Mass ..... : 2.2 kg
Effective wind load
- Horizontal polarization ..... : 0.7 m²
- Vertical polarization ..... : 0.13 m²

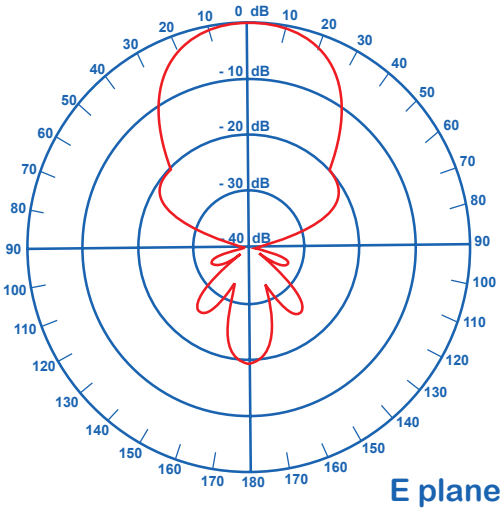
Approximate wind load (25 m/s - 55 mph)
- Horizontal polarization ..... : 2.8 daN
- Vertical polarization ..... : 5.0 daN

Approximate wind load (45 m/s - 100 mph)
- Horizontal polarization ..... : 9.2 daN
- Vertical polarization ..... : 16.3 daN

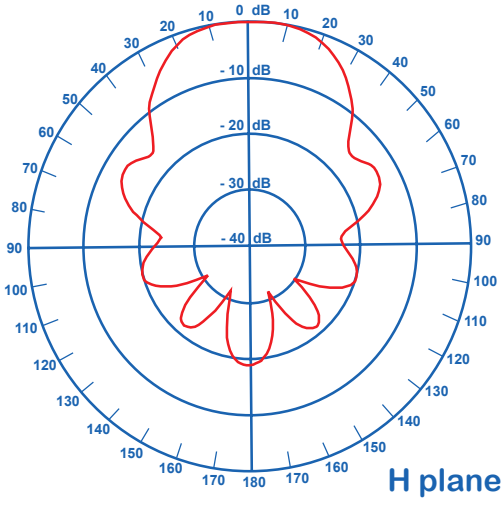
SWR curve



Radiation patterns



E plane



H plane

2x9 elements Yagi antenna

144 to 146 MHz

Part Nr. 220818

Electrical data

Radiation at 144.5 MHz

Effective electrical length .....: 1.65 λ
Isotropic gain .....: 13.1 dBi
Aperture angle @ -3 dB
- E-plane .....: 2 x 20.2°
- H-plane .....: 2 x 23.0°

First side lobe set
- E-plane .....: - 20.5 dB @ 54°
- H-plane .....: - 13.6 dB @ 58°

Rear protection ..... : - 19 dB
Average stray radiation
- E-plane .....: - 35 dB
- H-plane .....: - 24 dB

Bandwidth

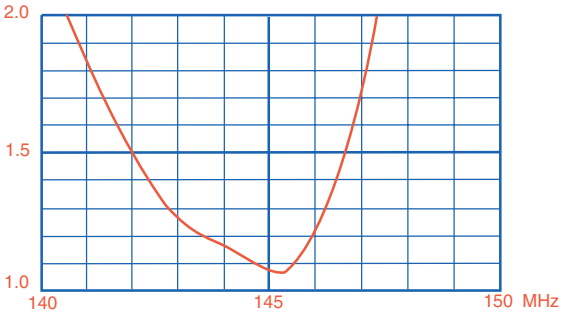
Gain @ -1 dB .....
Nominal impedance ..... : 140 to 148 MHz
Impedance match bandwidth @ SWR <1.3/1..... : 50 Ω
Acceptable RF power (continous duty) .....: 143.4 to 146.2 MHz
Required phase delay between frontmost and rearmost driven element ..... : 1000 W

Array of 2 or 4 antennas : 72°
(optimized stacking distance. from center to center of elements. for minimal side lobe radiation)
- Electrical distance .....: 1.33 λ
- Pratical distance .....: 2.77 m

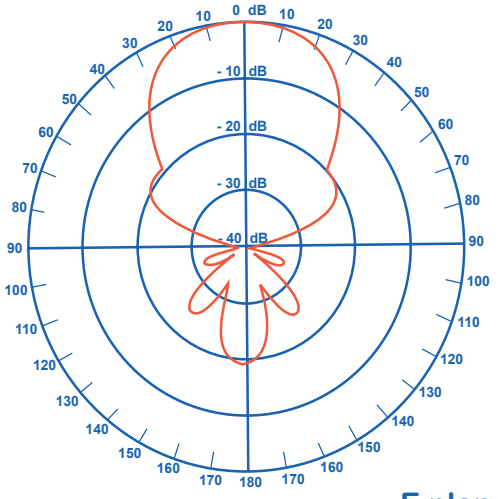
Mechanical data

Connector ..... : N
Overall length .....: 3.57 m
Mass ..... : 3.3 kg
Effective wind load..... : 0.15 m²
Approximate wind load (25 m/s - 55 mph) .....: 5.6 daN
Approximate wind load (45 m/s - 100 mph) .....: 18.2 daN

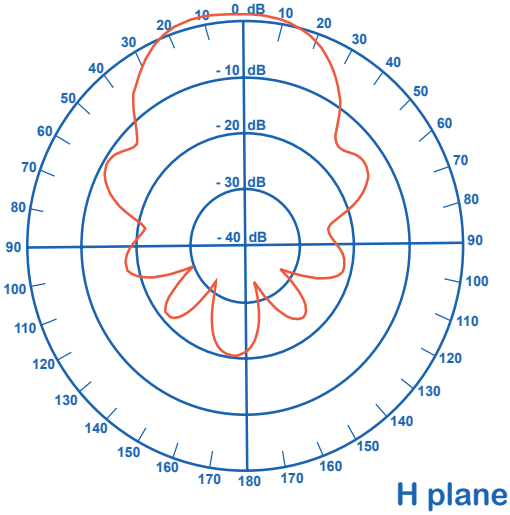
SWR curve



Radiation patterns



E plane



H plane

11 elements Yagi antenna

144 to 146 MHz

Part Nr. 220811

Electrical data

Radiation at 144.5 MHz

Effective electrical length ..... : 2.2 λ
Isotropic gain ..... : 14.2 dBi
Aperture angle @ -3 dB
- E-plane ..... : 2 x 18.5°
- H-plane ..... : 2 x 20.0°

First side lobe set
- E-plane ..... : - 18.2 dB @ 48°
- H-plane ..... : - 12.5 dB @ 49°

Rear protection ..... : - 27.4 dB
Average stray radiation
- E-plane ..... : - 32 dB
- H-plane ..... : - 25 dB

Bandwidth

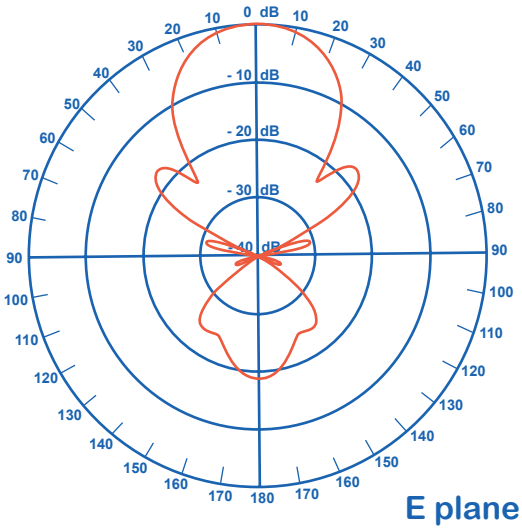
Gain @ -1 dB ..... : 141 to 147.5 MHz
Nominal impedance ..... : 50 Ω
Impedance match bandwidth @ SWR <1.3/1..... : 143.4 to 146.2 MHz
Acceptable RF power (continous duty) ..... : 1000 W

Array of 2 or 4 antennas

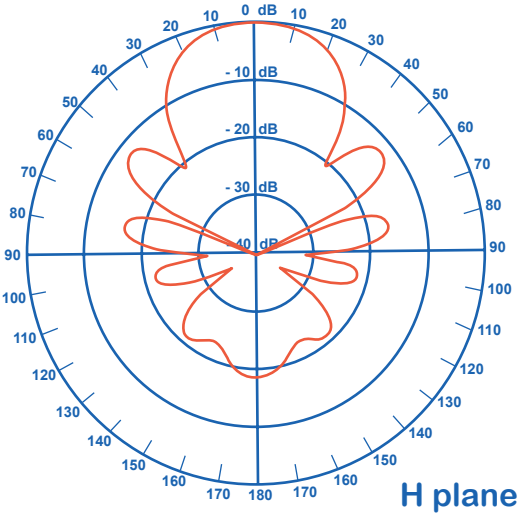
(optimized stacking distance. from center to center of elements. for minimal side lobe radiation)

- E plane - Electrical distance ..... : 1.7 λ
  - Pratical distance ..... : 3.53 m
- H plane - Electrical distance ..... : 1.6 λ
  - Pratical distance ..... : 3.32 m

Radiation patterns



E plane



H plane

Mechanical data

Connector ..... : N
Overall length ..... : 4.56 m
Mass ..... : 3.5 kg
Effective wind load
- Horizontal polarization ..... : 0.18 m²
- Vertical polarization ..... : 0.17 m²

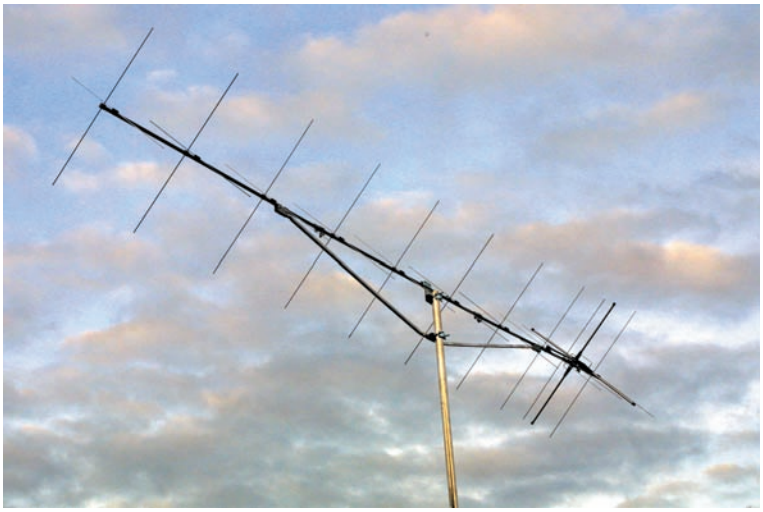
Approximate wind load (25 m/s - 55 mph)
- Horizontal polarization ..... : 6.9 daN
- Vertical polarization ..... : 6.7 daN

Approximate wind load (45 m/s - 100 mph)
- Horizontal polarization ..... : 22.4 daN
- Vertical polarization ..... : 21.6 daN

2x11 elements Yagi antenna

144 to 146 MHz

Part Nr. 220822



Electrical data

Radiation at 144.9 MHz

Effective electrical length .....: 2.20 λ
Isotropic gain .....: 14.0 dBi
Aperture angle @ -3 dB
- E-plane .....: 2 x 18.3°
- H-plane .....: 2 x 20.3°

First side lobe set
- E-plane .....: - 18.0 dB @ 50°
- H-plane .....: - 12.5 dB @ 50°

Rear protection ..... : - 18.5 dB
Average stray radiation
- E-plane .....: - 36 dB
- H-plane .....: - 24 dB

Bandwidth

Gain @ -1 dB .....: 142 to 148 MHz
Nominal impedance ..... : 50 Ω
Impedance match bandwidth @ SWR <1.3/1..... : 139.5 to 146.7 MHz
Acceptable RF power (continous duty) .....: 1000 W
Required phase delay between frontmost and rearmost driven element .....: 59°

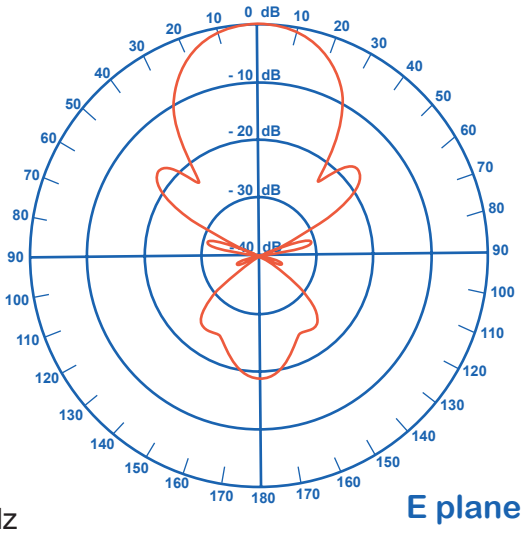
Array of 2 or 4 antennas

(optimized stacking distance. from center to center of elements. for minimal side lobe radiation)
- Electrical distance .....: 1.46 λ
- Pratical distance ..... : 3.05 m

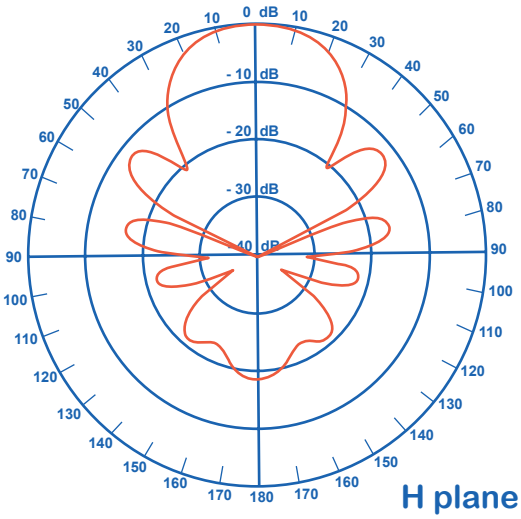
Mechanical data

Connector ..... : N
Overall length .....: 4.62 m
Mass ..... : 4.2 kg
Effective wind load..... : 0.2 m²
Approximate wind load (25 m/s - 55 mph) .....: 7.6 daN
Approximate wind load (45 m/s - 100 mph) .....: 24.5 daN

Radiation patterns



E plane



H plane

17 elements Yagi antenna

144 to 146 MHz

Part Nr. 220817

Electrical data

Radiation at 144.5 MHz

Effective electrical length ..... : 3.14 λ
Isotropic gain ..... : 15.3 dBi
Aperture angle @ -3 dB
- E-plane ..... : 2 x 16.5°
- H-plane ..... : 2 x 17.9°

First side lobe set
- E-plane ..... : - 17.7 dB @ 43°
- H-plane ..... : - 13.1 dB @ 44°

Rear protection ..... : - 36.9 dB
Average stray radiation
- E-plane ..... : - 37 dB
- H-plane ..... : - 27 dB

Bandwidth

Gain @ -1 dB ..... : 138 to 148 MHz
Nominal impedance ..... : 50 Ω
Impedance match bandwidth @ SWR <1.3/1..... : 143.4 to 146.2 MHz
Acceptable RF power (continous duty) ..... : 1000 W

Array of 2 or 4 antennas

(optimized stacking distance. from center to center of elements. for minimal side lobe radiation)

- E plane - Electrical distance ..... : 1.85 λ
  - Pratical distance ..... : 3.85 m
- H plane - Electrical distance ..... : 1.80 λ
  - Pratical distance ..... : 3.74 m

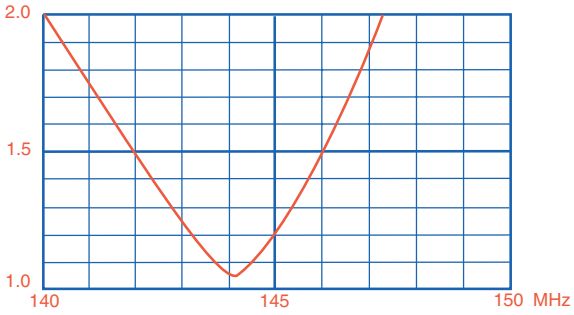
Mechanical data

Connector ..... : N
Overall length ..... : 6.57 m
Mass ..... : 6.5 kg
Effective wind load
- Horizontal polarization ..... : 0.29 m²
- Vertical polarization ..... : 0.25 m²

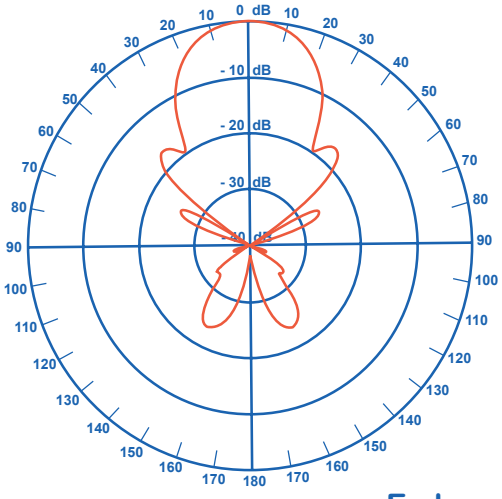
Approximate wind load (25 m/s - 55 mph)
- Horizontal polarization ..... : 10.9 daN
- Vertical polarization ..... : 9.7 daN

Approximate wind load (45 m/s - 100 mph)
- Horizontal polarization ..... : 35.3 daN
- Vertical polarization ..... : 31.4 daN

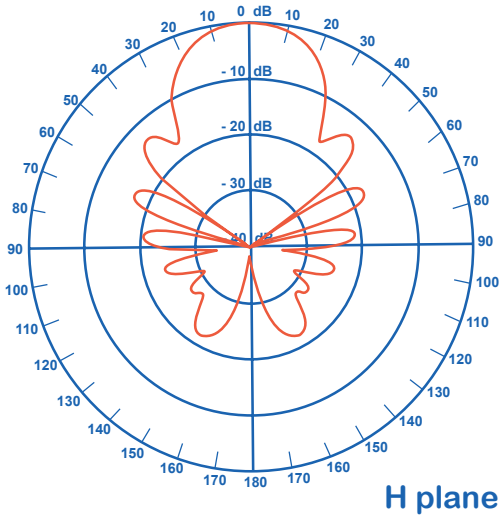
SWR curve



Radiation patterns



E plane



H plane

Pro-XL 144/18L
9 elements
yagi antenna

144 to 148 MHz

Part Nr. 220309

Electrical data

Radiation at 144.3 MHz

Effective electrical length ..... : 1.81 λ
Isotropic gain ..... : 13.2 dBi
Aperture angle @ -3 dB
- E-plane ..... : 2 x 20.6°
- H-plane ..... : 2 x 23.2°

First side lobe set
- E-plane ..... : - 20 dB @ 55°
- H-plane ..... : - 14 dB @ 60°

Rear protection ..... : - 21 dB
Average stray radiation
- E-plane ..... : - 30 dB
- H-plane ..... : - 24 dB

Bandwidth

Gain @ -1 dB ..... : 141 to 149 MHz
Nominal impedance ..... : 50 Ω
Impedance match bandwidth @ SWR <1.3/1..... : 143 to 148 MHz
Maximum RF power (peak, SSB/CW) ..... : 1000 W

Array of 2 or 4 antennas

(optimized stacking distance. from center to center of elements. for minimal side lobe radiation)

- E plane - Electrical distance ..... : 1.49 λ
- Pratical distance ..... : 3.10 m
- H plane - Electrical distance ..... : 1.41 λ
- Pratical distance ..... : 2.93 m

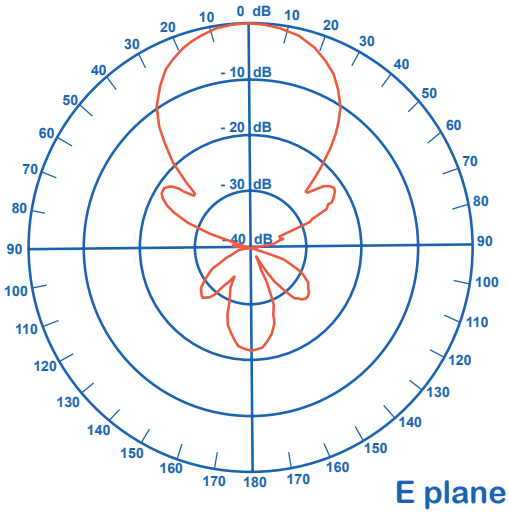
Mechanical data

Connector ..... : N
Overall length ..... : 3.85 m
Mass ..... : 3.5 kg
Effective wind load
- Horizontal polarization ..... : 0.12 m²
- Vertical polarization ..... : 0.24 m²

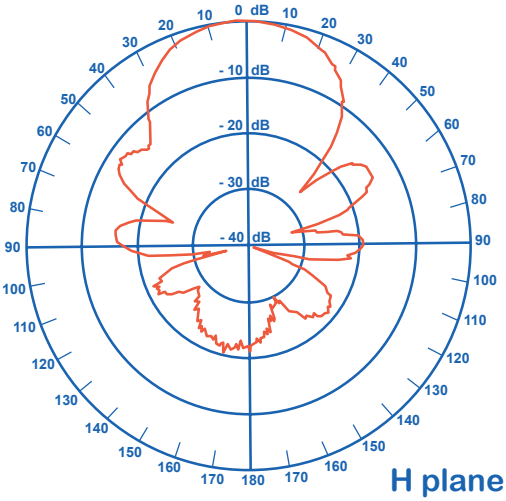
Approximate wind load (25 m/s - 55 mph)
- Horizontal polarization ..... : 4.6 daN
- Vertical polarization ..... : 9.2 daN

Approximate wind load (45 m/s - 100 mph)
- Horizontal polarization ..... : 14.8 daN
- Vertical polarization ..... : 29.6 daN

Radiation patterns



E plane



H plane

Pro-XL 144/23L
11 elements
yagi antenna

144 to 148 MHz

Part Nr. 220311

Electrical data

Radiation at 144.3 MHz

Effective electrical length ..... : 2.33 λ
Isotropic gain ..... : 14.2 dBi
Aperture angle @ -3 dB
- E-plane ..... : 2 x 18.4°
- H-plane ..... : 2 x 19.4°

First side lobe set
- E-plane ..... : - 18 dB @ 50°
- H-plane ..... : - 12 dB @ 50°

Rear protection ..... : - 21 dB
Average stray radiation
- E-plane ..... : - 30 dB
- H-plane ..... : - 24 dB

Bandwidth

Gain @ -1 dB ..... : 141 to 149 MHz
Nominal impedance ..... : 50 Ω
Impedance match bandwidth @ SWR <1.3/1..... : 143 to 147 MHz
Maximum RF power (peak, SSB/CW) ..... : 1000 W

Array of 2 or 4 antennas

(optimized stacking distance. from center to center of elements. for minimal side lobe radiation)

- E plane - Electrical distance ..... : 1.70 λ
- Pratical distance ..... : 3.53 m
- H plane - Electrical distance ..... : 1.59 λ
- Pratical distance ..... : 3.32 m

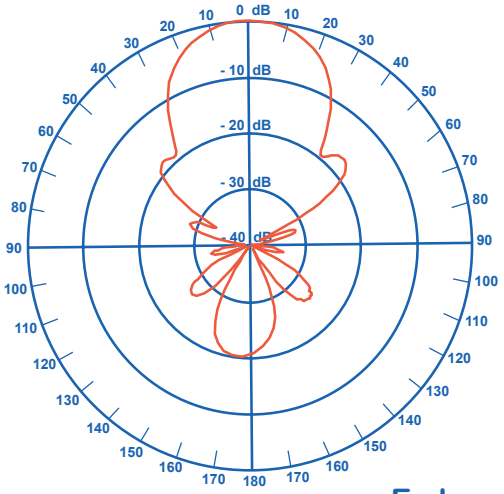
Mechanical data

Connector ..... : N
Overall length ..... : 4.89 m
Mass ..... : 5 kg
Effective wind load
- Horizontal polarization ..... : 0.24 m²
- Vertical polarization ..... : 0.27 m²

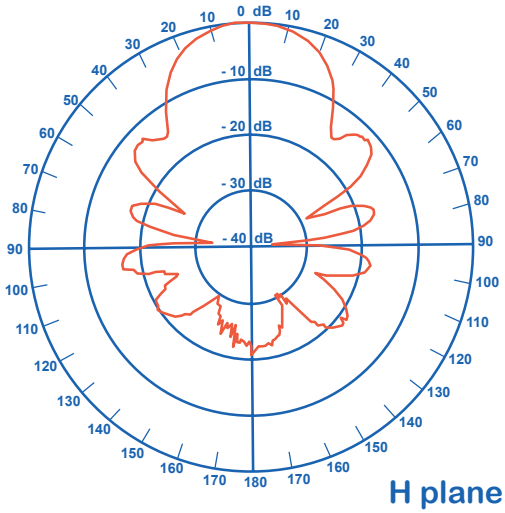
Approximate wind load (25 m/s - 55 mph)
- Horizontal polarization ..... : 9.2 daN
- Vertical polarization ..... : 10.3 daN

Approximate wind load (45 m/s - 100 mph)
- Horizontal polarization ..... : 29.6 daN
- Vertical polarization ..... : 33.3 daN

Radiation patterns



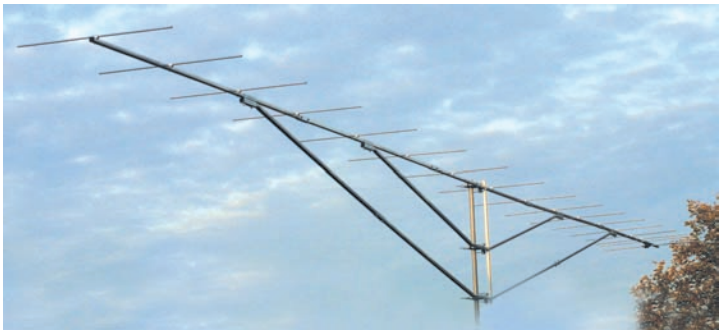
E plane



H plane

Pro-XL 144/50L
17 elements
yagi antenna

144 to 148 MHz



Part Nr. 220317

Electrical data

Radiation at 144.3 MHz

Effective electrical length ..... : 5.01 λ
Isotropic gain ..... : 17.0 dBi
Aperture angle @ -3 dB
- E-plane ..... : 2 x 14.0°
- H-plane ..... : 2 x 14.9°

First side lobe set
- E-plane ..... : - 18 dB @ 36°
- H-plane ..... : - 14 dB @ 37°

Rear protection ..... : - 29 dB
Average stray radiation
- E-plane ..... : - 35 dB
- H-plane ..... : - 27 dB

Bandwidth

Gain @ -1 dB ..... : 141 to 149 MHz
Nominal impedance ..... : 50 Ω
Impedance match bandwidth @ SWR <1.3/1..... : 143 to 146 MHz
Maximum RF power (peak, SSB/CW) ..... : 1000 W

Array of 2 or 4 antennas

(optimized stacking distance. from center to center of elements. for minimal side lobe radiation)

- E plane - Electrical distance ..... : 2.15 λ
  - Pratical distance ..... : 4.47 m
- H plane - Electrical distance ..... : 2.15 λ
  - Pratical distance ..... : 4.47 m

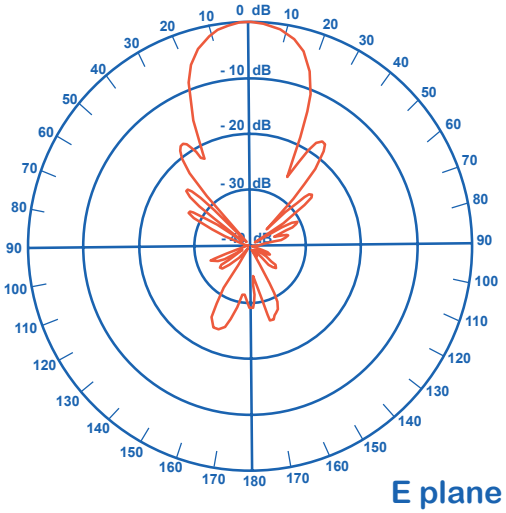
Mechanical data

Connector ..... : N
Overall length ..... : 10.45 m
Mass ..... : 18.5 kg
Effective wind load
- Horizontal polarization ..... : 0.73 m²

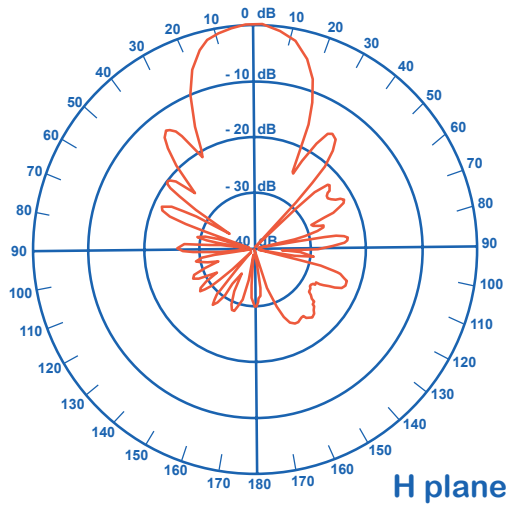
Approximate wind load (25 m/s - 55 mph)
- Horizontal polarization ..... : 27.8 daN

Approximate wind load (45 m/s - 100 mph)
- Horizontal polarization ..... : 89.7 daN

Radiation patterns



E plane



H plane

Pro-XL 144/18L 2x9 elements yagi antenna

144 to 148 MHz

Part Nr. 220319

Electrical data

Radiation at 144.3 MHz

Effective electrical length ..... : 1.81 λ
Isotropic gain ..... : 13.2 dBi
Aperture angle @ -3 dB
- E-plane ..... : 2 x 20.6°
- H-plane ..... : 2 x 23.2°

First side lobe set
- E-plane ..... : - 20 dB @ 55°
- H-plane ..... : - 14 dB @ 60°

Rear protection ..... : - 21 dB
Average stray radiation
- E-plane ..... : - 30 dB
- H-plane ..... : - 24 dB

Bandwidth

Gain @ -1 dB ..... : 141 to 149 MHz
Nominal impedance ..... : 50 Ω
Impedance match bandwidth @ SWR <1.3/1..... : 143 to 148 MHz
Maximum RF power (peak, SSB/CW) ..... : 1000 W

Array of 2 or 4 antennas

(optimized stacking distance. from center to center of elements. for minimal side lobe radiation)

- E plane - Electrical distance ..... : 1.49 λ
  - Pratical distance ..... : 3.10 m
- H plane - Electrical distance ..... : 1.41 λ
  - Pratical distance ..... : 2.93 m

Mechanical data

Connector ..... : N
Overall length ..... : 3.95 m
Mass ..... : 4.5 kg
Effective wind load ..... : 0.24 m²
Approximate wind load (25 m/s - 55 mph) ..... : 9.2 daN
Approximate wind load (45 m/s - 100 mph) ..... : 29.6 daN

9 elements Yagi antenna

430 to 440 MHz

Part Nr. 220909

Electrical data

Radiation at 432 MHz

Effective electrical length ..... : 1.59 λ
Isotropic gain ..... : 13.1 dBi
Aperture angle @ -3 dB
- E-plane ..... : 2 x 20.6°
- H-plane ..... : 2 x 23.7°

First side lobe set
- E-plane ..... : - 22.2 dB @ 57°
- H-plane ..... : - 14.7 dB @ 64°

Rear protection ..... : - 16.8 dB
Average stray radiation
- E-plane ..... : - 34 dB
- H-plane ..... : - 22 dB

Bandwidth

Gain @ -1 dB ..... : 409 to 440 MHz
Nominal impedance ..... : 50 Ω
Impedance match bandwidth @ SWR <1.3/1..... : 431.0 to 438.5 MHz
Acceptable RF power (continous duty) ..... : 1000 W

Array of 2 or 4 antennas

(optimized stacking distance. from center to center of elements. for minimal side lobe radiation)

- E plane - Electrical distance ..... : 1.33 λ
- Pratical distance ..... : 0.92 m
- H plane - Electrical distance ..... : 1.33 λ
- Pratical distance ..... : 0.92 m

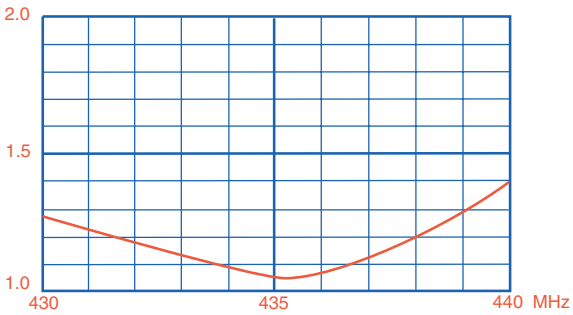
Mechanical data

Connector ..... : N
Overall length ..... : 1.24 m
Mass ..... : 1.2 kg
Effective wind load
- Horizontal polarization ..... : 0.03 m²
- Vertical polarization ..... : 0.04 m²

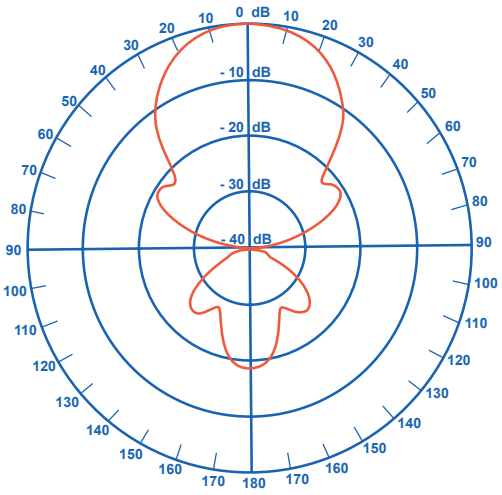
Approximate wind load (25 m/s - 55 mph)
- Horizontal polarization ..... : 1.0 daN
- Vertical polarization ..... : 1.6 daN

Approximate wind load (45 m/s - 100 mph)
- Horizontal polarization ..... : 3.3 daN
- Vertical polarization ..... : 5.3 daN

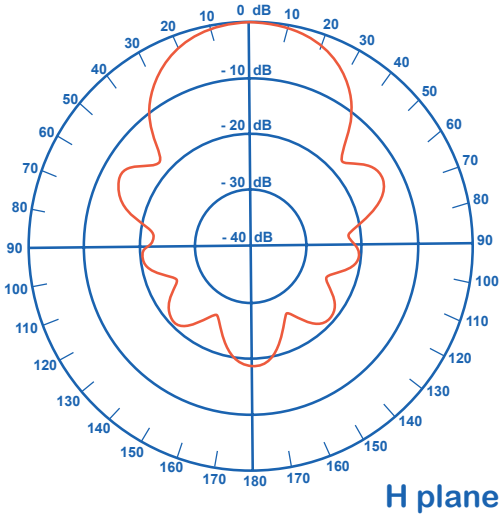
SWR curve



Radiation patterns



E plane



H plane

19 elements Yagi antenna

430 to 440 MHz

Part Nr. 220919

Electrical data

Radiation at 432 MHz

Effective electrical length ..... : 4.02 λ
Isotropic gain ..... : 16.4 dBi
Aperture angle @ -3 dB
- E-plane ..... : 2 x 14.8°
- H-plane ..... : 2 x 15.7°

First side lobe set
- E-plane ..... : - 16.0 dB @ 38°
- H-plane ..... : - 12.9 dB @ 38°

Rear protection ..... : - 23.6 dB
Average stray radiation
- E-plane ..... : - 38 dB
- H-plane ..... : - 28 dB

Bandwidth

Gain @ -1 dB ..... : 415 to 442 MHz
Nominal impedance ..... : 50 Ω
Impedance match bandwidth @ SWR <1.3/1..... : 431.0 to 439.0 MHz
Acceptable RF power (continous duty) ..... : 1000 W

Array of 2 or 4 antennas

(optimized stacking distance. from center to center of elements. for minimal side lobe radiation)

- E plane - Electrical distance ..... : 1.80 λ
  - Pratical distance ..... : 1.25 m
- H plane - Electrical distance ..... : 1.80 λ
  - Pratical distance ..... : 1.25 m

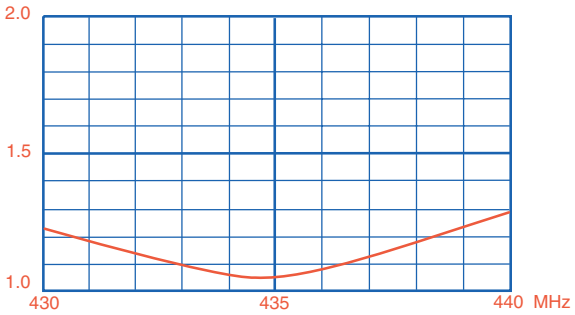
Mechanical data

Connector ..... : N
Overall length ..... : 2.82 m
Mass ..... : 1.9 kg
Effective wind load
- Horizontal polarization ..... : 0.06 m²
- Vertical polarization ..... : 0.09 m²

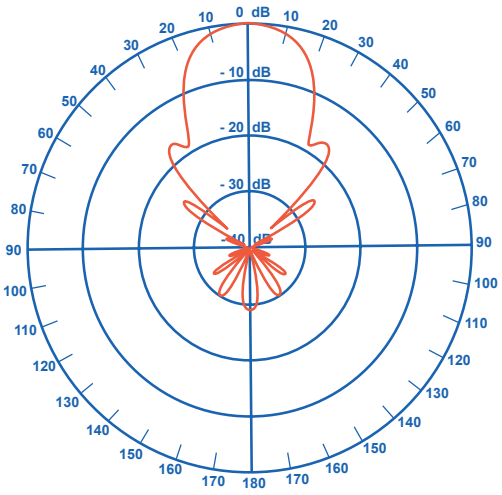
Approximate wind load (25 m/s - 55 mph)
- Horizontal polarization ..... : 2.3 daN
- Vertical polarization ..... : 3.5 daN

Approximate wind load (45 m/s - 100 mph)
- Horizontal polarization ..... : 7.5 daN
- Vertical polarization ..... : 11.3 daN

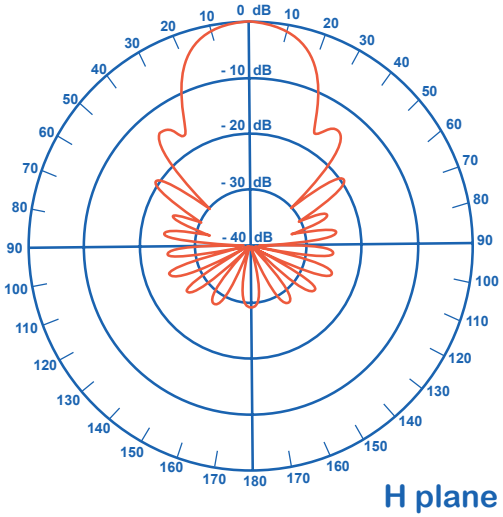
SWR curve



Radiation patterns



E plane



H plane

2x19 elements crossed yagi antenna

430 to 440 MHz

Part Nr. 220938

Electrical data

Radiation at 432 MHz

Effective electrical length ..... : 4.02 λ
Isotropic gain ..... : 16.0 dBi
Aperture angle @ -3 dB
- E-plane ..... : 2 x 14.8°
- H-plane ..... : 2 x 14.7°

First side lobe set
- E-plane ..... : - 16.0 dB @ 38°
- H-plane ..... : - 12.9 dB @ 38°

Rear protection ..... : - 23.6 dB
Average stray radiation
- E-plane ..... : - 36 dB
- H-plane ..... : - 28 dB

Bandwidth

Gain @ -1 dB ..... : 416 to 442 MHz
Nominal impedance ..... : 50 Ω
Impedance match bandwidth @ SWR <1.3/1..... : 431 to 439 MHz
Acceptable RF power (continous duty) ..... : 1000 W
Required phase delay between frontmost and rearmost driven element ..... : 14°

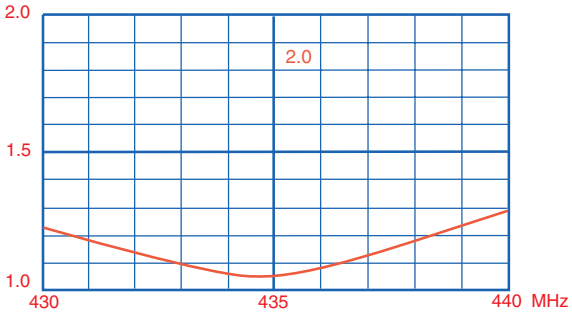
Array of 2 or 4 antennas

(optimized stacking distance. from center to center of elements. for minimal side lobe radiation)
- E plane - Electrical distance ..... : 1.80 λ
  - Pratical distance ..... : 1.25 m
- H plane - Electrical distance ..... : 1.80 λ
  - Pratical distance ..... : 1.25 m

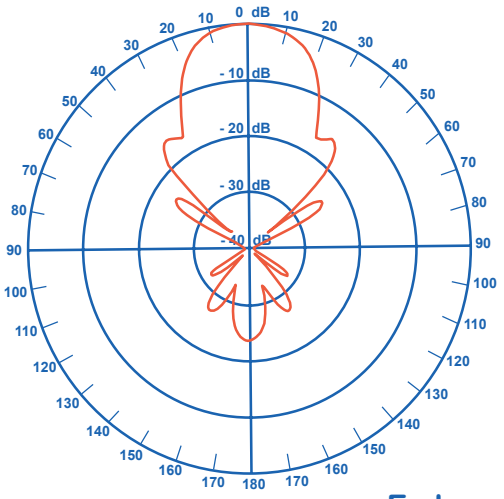
Mechanical data

Connector ..... : N
Overall length ..... : 3.25 m
Mass ..... : 2.2 kg
Effective wind load ..... : 0.09 m²
Approximate wind load (25 m/s - 55 mph) ..... : 3.5 daN
Approximate wind load (45 m/s - 100 mph) ..... : 11.3 daN

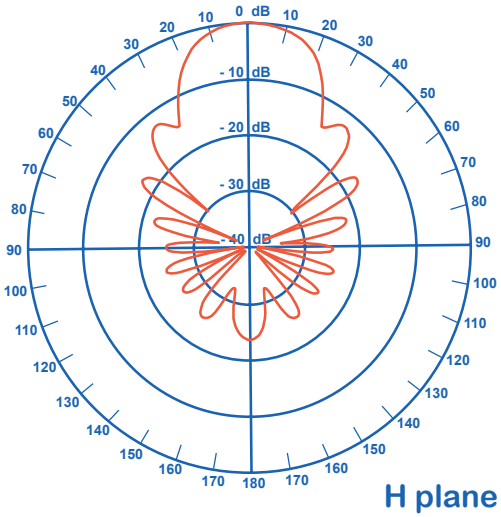
SWR curve



Radiation patterns



E plane



H plane

21 elements Yagi antenna

432 to 434 MHz

Part Nr. 220921

Electrical data

Radiation at 432 MHz

Effective electrical length ..... : 6.57 λ
Isotropic gain ..... : 18.1 dBi
Aperture angle @ -3 dB
- E-plane ..... : 2 x 11.8°
- H-plane ..... : 2 x 12.2°

First side lobe set
- E-plane ..... : - 14.5 dB @ 29°
- H-plane ..... : - 12.9 dB @ 29°

Rear protection ..... : - 29.7 dB
Average stray radiation
- E-plane ..... : - 38 dB
- H-plane ..... : - 29 dB

Bandwidth

Gain @ -1 dB ..... : 416 to 440 MHz
Nominal impedance ..... : 50 Ω
Impedance match bandwidth @ SWR <1.3/1..... : 431.0 to 439.0 MHz
Acceptable RF power (continous duty) ..... : 1000 W

Array of 2 or 4 antennas

(optimized stacking distance. from center to center of elements. for minimal side lobe radiation)

- E plane - Electrical distance ..... : 2.33 λ
- Pratical distance ..... : 1.62 m
- H plane - Electrical distance ..... : 2.33 λ
- Pratical distance ..... : 1.62 m

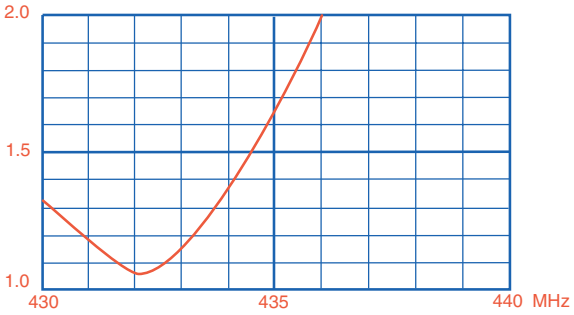
Mechanical data

Connector ..... : N
Overall length ..... : 4.60 m
Mass ..... : 3.1 kg
Effective wind load
- Horizontal polarization ..... : 0.16 m²
- Vertical polarization ..... : 0.13 m²

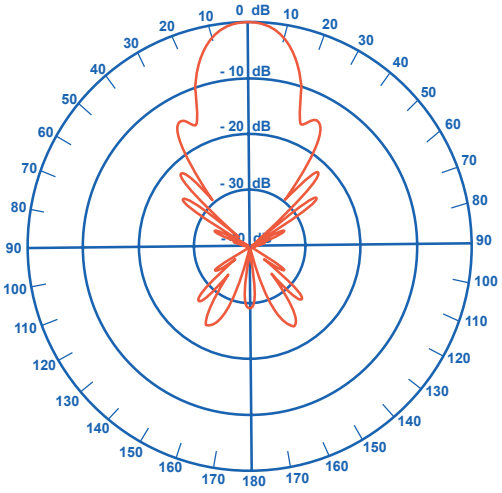
Approximate wind load (25 m/s - 55 mph)
- Horizontal polarization ..... : 6.5 daN
- Vertical polarization ..... : 5.3 daN

Approximate wind load (45 m/s - 100 mph)
- Horizontal polarization ..... : 21.1 daN
- Vertical polarization ..... : 17.1 daN

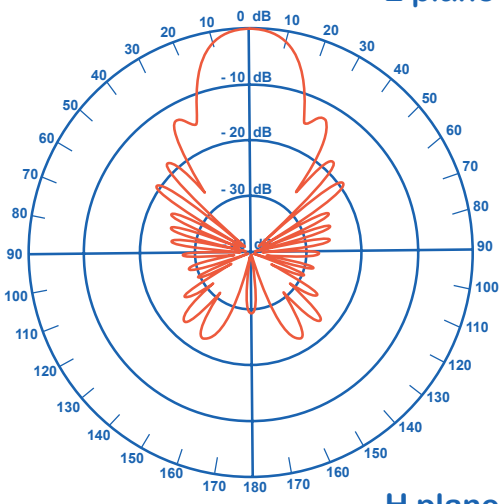
SWR curve



Radiation patterns



E plane

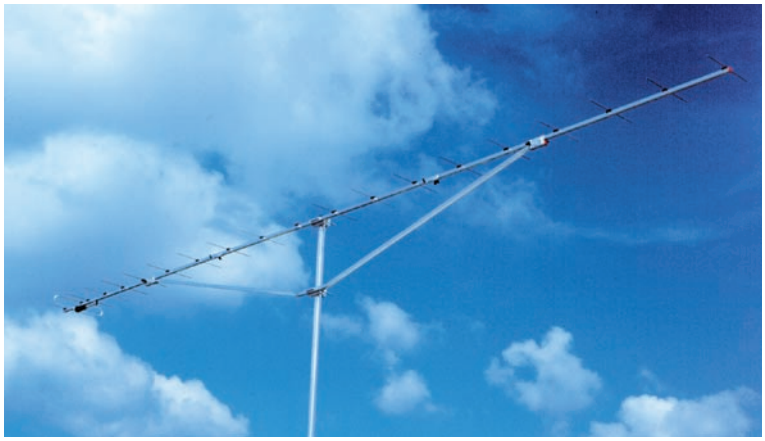


H plane

21 elements Yagi antenna

434 to 440 MHz

Part Nr. 220922



Electrical data

Radiation at 438.5 MHz

Effective electrical length ..... : 6.67 λ
Isotropic gain ..... : 18.2 dBi
Aperture angle @ -3 dB
- E-plane ..... : 2 x 11.5°
- H-plane ..... : 2 x 11.9°

First side lobe set
- E-plane ..... : - 13.8 dB @ 29°
- H-plane ..... : - 12.0 dB @ 30°

Rear protection ..... : - 29.7 dB
Average stray radiation
- E-plane ..... : - 35 dB
- H-plane ..... : - 24 dB

Bandwidth

Gain @ -1 dB ..... : 417 to 442 MHz
Nominal impedance ..... : 50 Ω
Impedance match bandwidth @ SWR <1.3/1..... : 435.0 to 441.0 MHz
Acceptable RF power (continous duty) ..... : 1000 W

Array of 2 or 4 antennas

(optimized stacking distance. from center to center of elements. for minimal side lobe radiation)

- E plane - Electrical distance ..... : 2.36 λ
  - Pratical distance ..... : 1.62 m
- H plane - Electrical distance ..... : 2.36 λ
  - Pratical distance ..... : 1.62 m

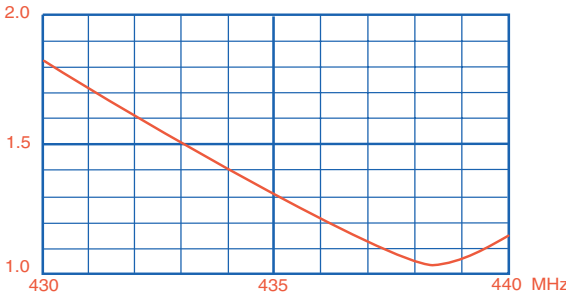
Mechanical data

Connector ..... : N
Overall length ..... : 4.60 m
Mass ..... : 3.1 kg
Effective wind load
- Horizontal polarization ..... : 0.16 m²
- Vertical polarization ..... : 0.13 m²

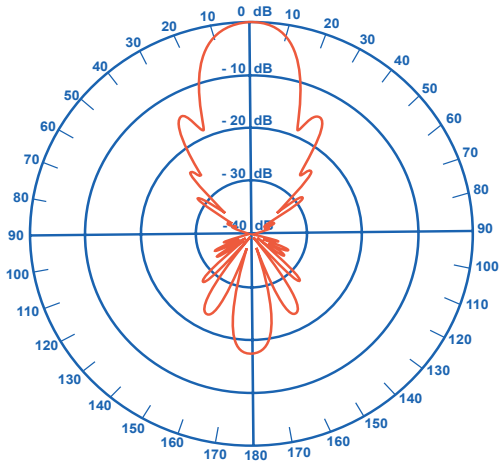
Approximate wind load (25 m/s - 55 mph)
- Horizontal polarization ..... : 6.5 daN
- Vertical polarization ..... : 5.3 daN

Approximate wind load (45 m/s - 100 mph)
- Horizontal polarization ..... : 21.1 daN
- Vertical polarization ..... : 17.1 daN

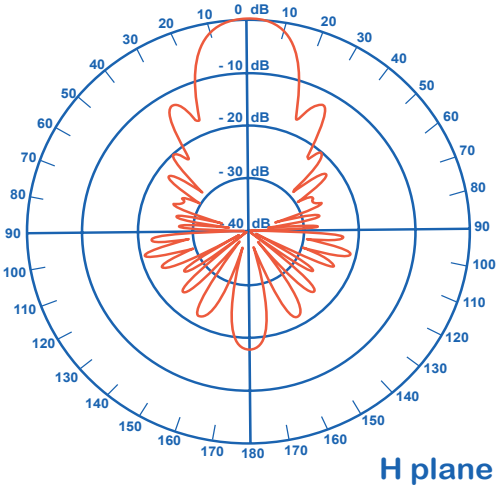
SWR Curve



Radiation patterns



E plane



H plane

19 elements PRO-XL antenna

430 to 440 MHz

Part Nr. 220319

Electrical data

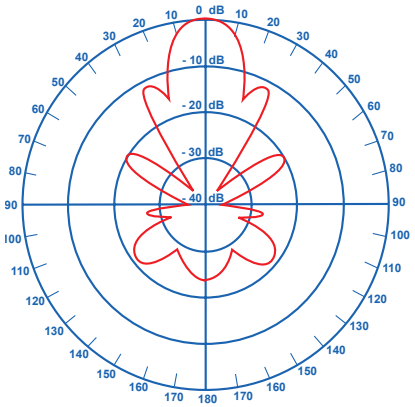
Effective electrical length ..... : 4.34 λ
Isotropic gain ..... : 16.2 dBi
Aperture angle @ -3 dB
- E-plane ..... : 2 x 14.6°
- H-plane ..... : 2 x 16.9°

First side lobe set
- E-plane ..... : - 12.0 dB à 29°
- H-plane ..... : - 15.0 dB à 29°

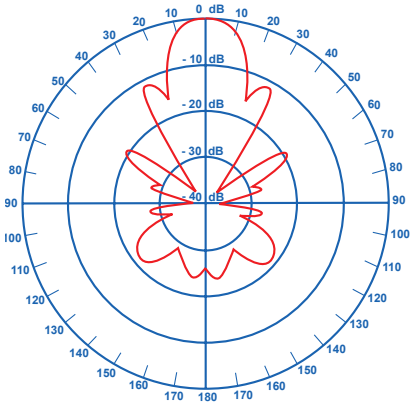
Rear protection ..... : - 25.8 dB
Average stray radiation
- E-plane ..... : - 34 dB
- H-plane ..... : - 26 dB

Bandwidth
Gain @ -1 dB ..... : 427 à 445 MHz
Nominal impedance ..... : 50 Ω
Impedance match bandwidth @ SWR <1.3/1..... : 429 à 442 MHz
Acceptable RF power (continous duty) ..... : 1000 W

Array of 2 or 4 antennas
(optimized stacking distance. from center to center of elements. for minimal side lobe radiation)
- E plane - Electrical distance ..... : 1.8 λ
- Pratical distance ..... : 1.25 m
- H plane - Electrical distance ..... : 1.8 λ
- Pratical distance ..... : 1.25 m



220319 - 432 MHz



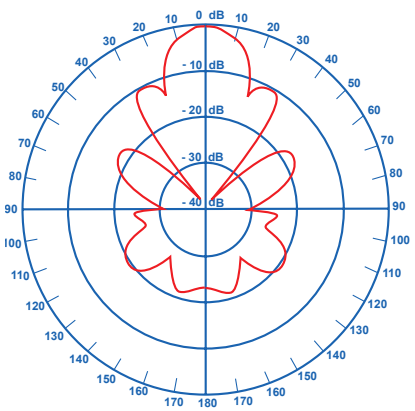
220319 - 435 MHz

Mechanical data

Connector ..... : N
Overall length ..... : 3.00 m
Mass ..... : 3.8 kg
Effective wind load
- Horizontal polarization ..... : 0.13 m²
- Vertical polarization ..... : 0.25 m²

Approximate wind load (25 m/s - 55 mph)
- Horizontal polarization ..... : 4.4 daN
- Vertical polarization ..... : 9.1 daN

Approximate wind load (45 m/s - 100 mph)
- Horizontal polarization ..... : 14.5 daN
- Vertical polarization ..... : 29.3 daN



220319 - 438.5 MHz

29 elements PRO-XL antenna

430 to 440 MHz

Part Nr. 220329

Electrical data

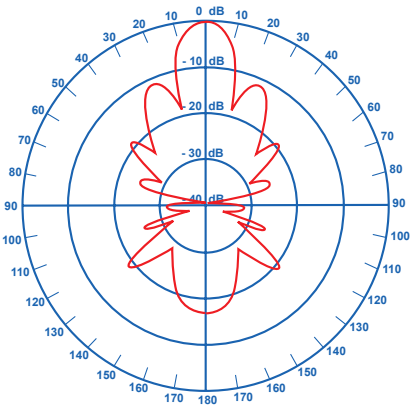
Effective electrical length ..... : 7.13 λ
Isotropic gain ..... : 18.3 dBi
Aperture angle @ -3 dB
- E-plane ..... : 2 x 9.3°
- H-plane ..... : 2 x 11.6°

First side lobe set
- E-plane ..... : - 11.0 dB à 25°
- H-plane ..... : - 12.0 dB à 25°

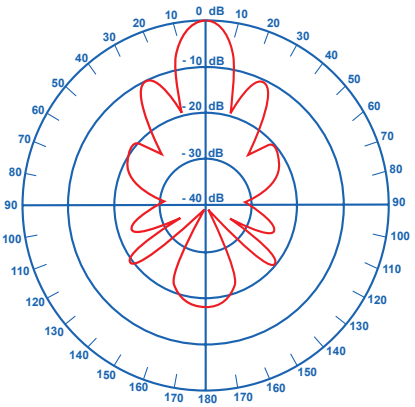
Rear protection ..... : - 18.9 dB
Average stray radiation
- E-plane ..... : - 36 dB
- H-plane ..... : - 28 dB

Bandwidth
Gain @ -1 dB ..... : 426 à 444 MHz
Nominal impedance ..... : 50 Ω
Impedance match bandwidth @ SWR <1.3/1..... : 427 à 445 MHz
Acceptable RF power (continous duty) ..... : 1000 W

Array of 2 or 4 antennas
(optimized stacking distance. from center to center of elements. for minimal side lobe radiation)
- E plane - Electrical distance ..... : 2.5 λ
- Pratical distance ..... : 1.73 m
- H plane - Electrical distance ..... : 2.5 λ
- Pratical distance ..... : 1.73 m



220329 - 432 MHz



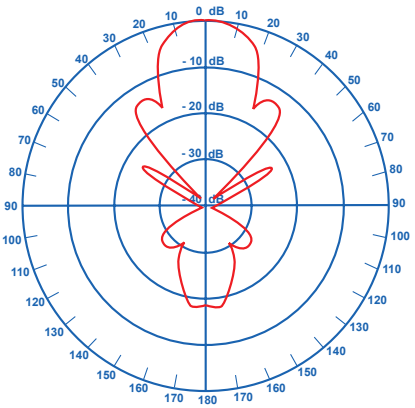
220329 - 435 MHz

Mechanical data

Connector ..... : N
Overall length ..... : 4.92 m
Mass ..... : 6.2 kg
Effective wind load
- Horizontal polarization ..... : 0.21 m²
- Vertical polarization ..... : 0.39 m²

Approximate wind load (25 m/s - 55 mph)
- Horizontal polarization ..... : 7.1 daN
- Vertical polarization ..... : 14.2 daN

Approximate wind load (45 m/s - 100 mph)
- Horizontal polarization ..... : 23.4 daN
- Vertical polarization ..... : 45.7 daN



220329 - 438.5 MHz

44 elements PRO-XL antenna

430 to 440 MHz

Part Nr. 220344

Electrical data

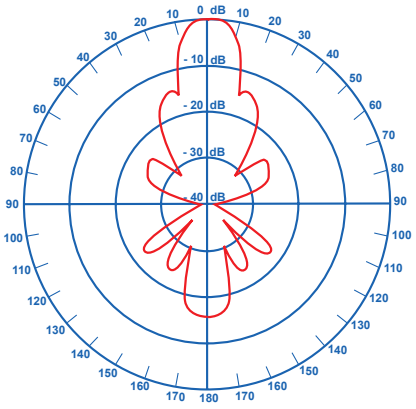
Effective electrical length ..... : 10.99 λ
Isotropic gain ..... : 20.2 dBi
Aperture angle @ -3 dB
- E-plane ..... : 2 x 8.5°
- H-plane ..... : 2 x 10.9°

First side lobe set
- E-plane ..... : - 15.0 dB à 20°
- H-plane ..... : - 18.0 dB à 20°

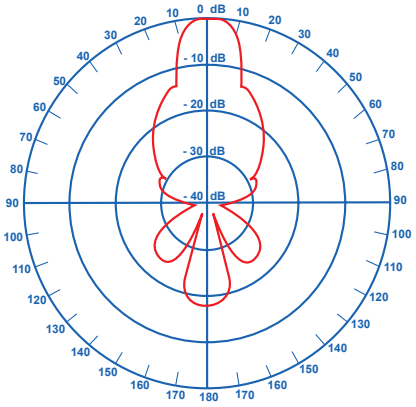
Rear protection ..... : - 22.1 dB
Average stray radiation
- E-plane ..... : - 39 dB
- H-plane ..... : - 34 dB

Bandwidth
Gain @ -1 dB ..... : 428 à 442 MHz
Nominal impedance ..... : 50 Ω
Impedance match bandwidth @ SWR <1.3/1..... : 429 à 441 MHz
Acceptable RF power (continous duty) ..... : 1000 W

Array of 2 or 4 antennas
(optimized stacking distance. from center to center of elements. for minimal side lobe radiation)
- E plane - Electrical distance ..... : 3.0 λ
- Pratical distance ..... : 2.1 m
- H plane - Electrical distance ..... : 13.0 λ
- Pratical distance ..... : 2.1 m



220344 - 432 MHz



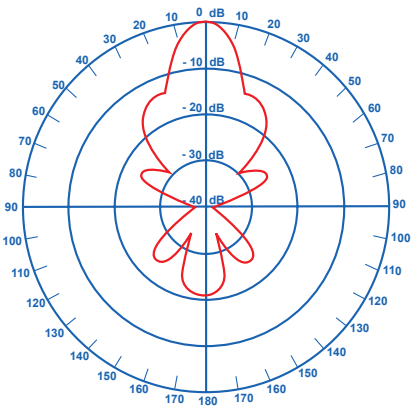
220344 - 435 MHz

Mechanical data

Connector ..... : N
Overall length ..... : 7.59 m
Mass ..... : 16.2 kg
Effective wind load
- Horizontal polarization ..... : 0.13 m²
- Vertical polarization ..... : 0.25 m²

Approximate wind load (25 m/s - 55 mph)
- Horizontal polarization ..... : 15.9 daN
- Vertical polarization ..... : 23.7 daN

Approximate wind load (45 m/s - 100 mph)
- Horizontal polarization ..... : 52.4 daN
- Vertical polarization ..... : 76.1 daN



220344 - 438.5 MHz

«Flat line»
Patch antenna

430 to 440 MHz

Part Nr. 220901

Electrical data

Radiation at 435 MHz

Effective electrical length .....: 0.06 λ
Isotropic gain .....: 8.0 dBi
Aperture angle @ -3 dB
- E-plane .....: 2 x 38.8°
- H-plane .....: 2 x 41.0°

First side lobe set
- E-plane .....: -
- H-plane .....: -

Rear protection ..... : - 15 dB
Average stray radiation
- E-plane .....: - 20 dB
- H-plane .....: - 20 dB

Bandwidth

Gain @ -1 dB .....: 425 to 445 MHz
Nominal impedance ..... : 50 Ω
Impedance match bandwidth @ SWR <1.3/1..... : 430 to 440 MHz
Acceptable RF power (CW/FM/PSK) ..... : 150 W

Array of 2 or 4 antennas

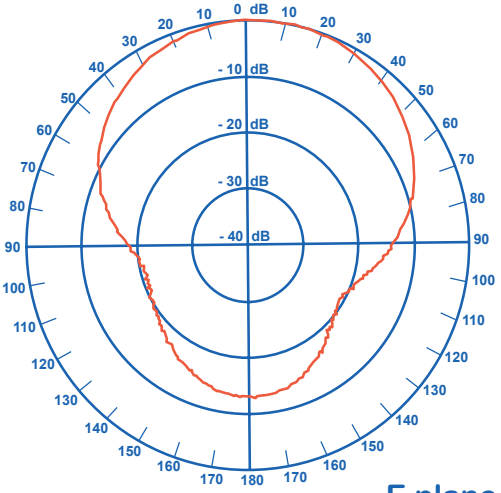
(optimized stacking distance. from center to center of elements. for minimal side lobe radiation)

- E plane - Electrical distance ..... : 0.57 λ
- Pratical distance ..... : 0.38 m
- H plane - Electrical distance ..... : 0.53 λ
- Pratical distance ..... : 0.37 m

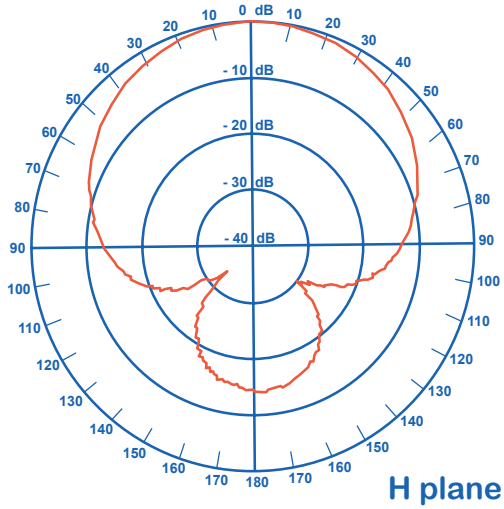
Mechanical data

Connector ..... : N
Overall length .....: 300 x 390 x 50 mm
Mass ..... : 0.5 kg
Effective wind load ..... : 0.11 m²
Approximate wind load (25 m/s - 55 mph) .....: 4.1 daN
Approximate wind load (45 m/s - 100 mph) .....: 13.3 daN

Radiation patterns

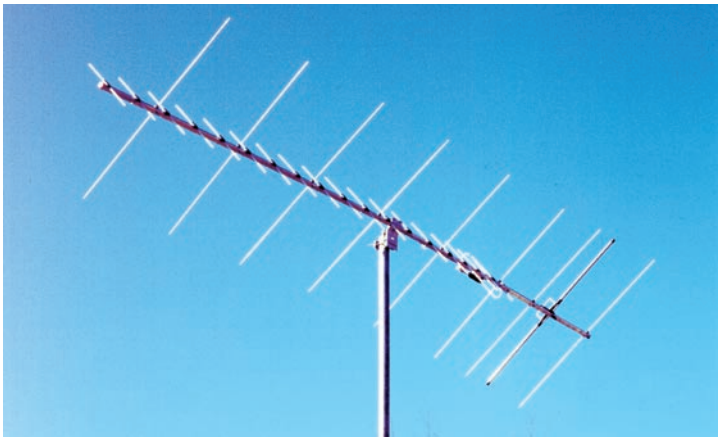


E plane



H plane

9 elements Yagi antenna 144 to 146 MHz 19 elements 430 to 440 MHz Special satellite Part Nr. 220899



Both antennas are electrically completely independant. So they need two separate coaxial feed lines.
Both antenna planes being orthogonal, when one antenna is used in horizontal polarization, the other is then in vertical polarization. This has no importance as far as satellite operation is concerned.
On other hand. proper stacking of such antennas is impossible. Suppose an optimized stacking for the 144 MHz band ; spacings are then too large at 432 MHz. If optimized at 432 MHz, they become too short at 144 MHz. leading to unacceptable impedance mismatch and practically no stacking gain.

Electrical data

Refer to respective data of the antenna Part Nr. 20809 for the 144/146 MHz section and of the antenna Part Nr. 20919 for the 430/440 MHz section.

Mechanical data

Connector ..... : N
Overall length ..... : 3.70 m
Mass ..... : 3.5 kg
Effective wind load
- Horizontal polarization ..... : 0.10 m²
- Vertical polarization ..... : 0.16 m²

Approximate wind load (25 m/s - 55 mph)
- Horizontal polarization ..... : 4.1 daN
- Vertical polarization ..... : 6.5 daN

Approximate wind load (45 m/s - 100 mph)
- Horizontal polarization ..... : 13.2 daN
- Vertical polarization ..... : 21.0 daN

Note : «horizntal» and «vertical» refer to plane of the 144 MHz antenna section

23 elements Yagi antenna

1260 to 1300 MHz

Part Nr. 220623

Electrical data

Radiation at 1296 MHz

Effective electrical length ..... : 7.43 λ
Isotropic gain ..... : 18.1 dBi
Aperture angle @ -3 dB
- E-plane ..... : 2 x 10.1°
- H-plane ..... : 2 x 10.3°

First side lobe set
- E-plane ..... : - 10.6 dB @ 27°
- H-plane ..... : - 9.3 dB @ 28°

Rear protection ..... : - 21 dB
Average stray radiation
- E-plane ..... : - 37 dB
- H-plane ..... : - 28 dB

Bandwidth

Gain @ -1 dB ..... : 1246 to 1326 MHz
Nominal impedance ..... : 50 Ω
Impedance match bandwidth @ SWR <1.3/1..... : 1290 to 1302 MHz
Acceptable RF power (continous duty) ..... : 300 W

Array of 2 or 4 antennas

(optimized stacking distance. from center to center of elements. for minimal side lobe radiation)

- E plane - Electrical distance ..... : 3.05 λ
- Pratical distance ..... : 0.70 m
- H plane - Electrical distance ..... : 3.05 λ
- Pratical distance ..... : 0.70 m

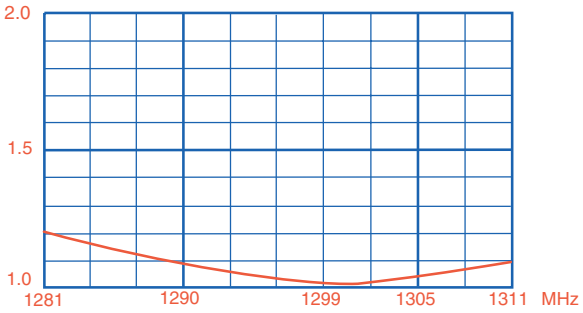
Mechanical data

Connector ..... : N
Overall length ..... : 1.75 m
Mass ..... : 1.4 kg
Effective wind load
- Horizontal polarization ..... : 0.06 m²
- Vertical polarization ..... : 0.05 m²

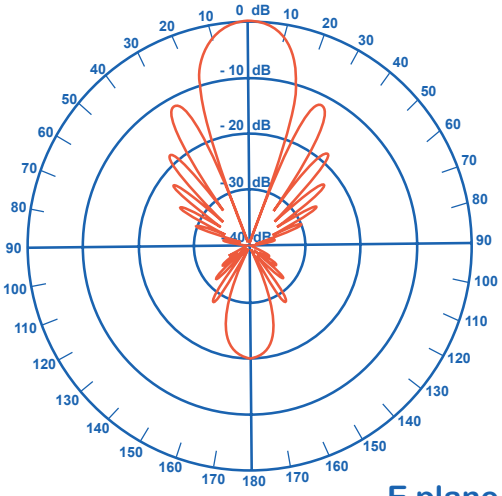
Approximate wind load (25 m/s - 55 mph)
- Horizontal polarization ..... : 2.4 daN
- Vertical polarization ..... : 2.0 daN

Approximate wind load (45 m/s - 100 mph)
- Horizontal polarization ..... : 7.9 daN
- Vertical polarization ..... : 6.5 daN

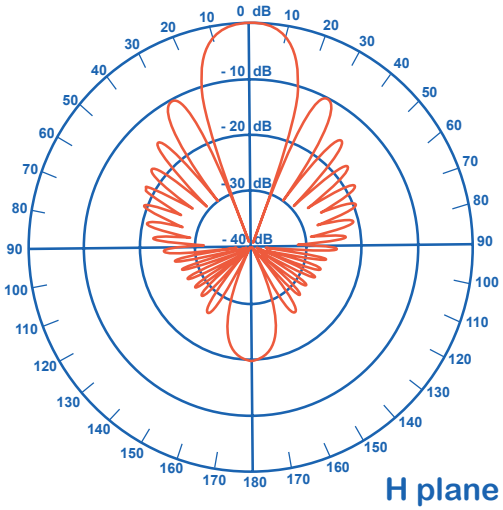
SWR curve



Radiation patterns



E plane



H plane

35 elements Yagi antenna

1260 to 1300 MHz

Part Nr. 220635

Electrical data

Radiation at 1296 MHz

Effective electrical length ..... : 13.6 λ
Isotropic gain ..... : 20.8 dBi
Aperture angle @ -3 dB
- E-plane ..... : 2 x 9.6°
- H-plane ..... : 2 x 9.8°

First side lobe set
- E-plane ..... : - 16.5 dB @ 21°
- H-plane ..... : - 16.0 dB @ 24°

Rear protection ..... : - 18 dB
Average stray radiation
- E-plane ..... : - 30 dB
- H-plane ..... : - 24 dB

Bandwidth

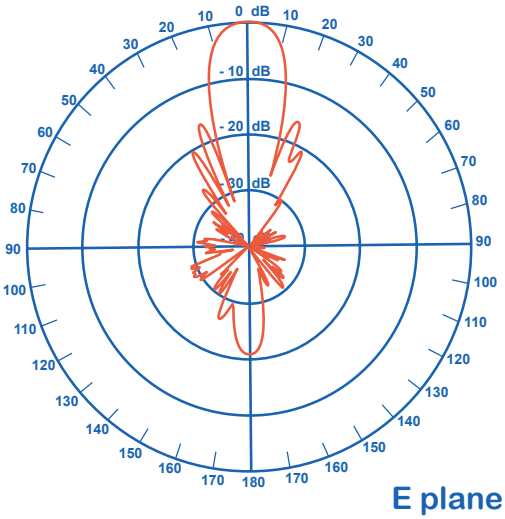
Gain @ -1 dB ..... : 1280 to 1314 MHz
Nominal impedance ..... : 50 Ω
Impedance match bandwidth @ SWR <1.3/1..... : 1293 to 1302 MHz
Acceptable RF power (continous duty) ..... : 300 W

Array of 2 or 4 antennas

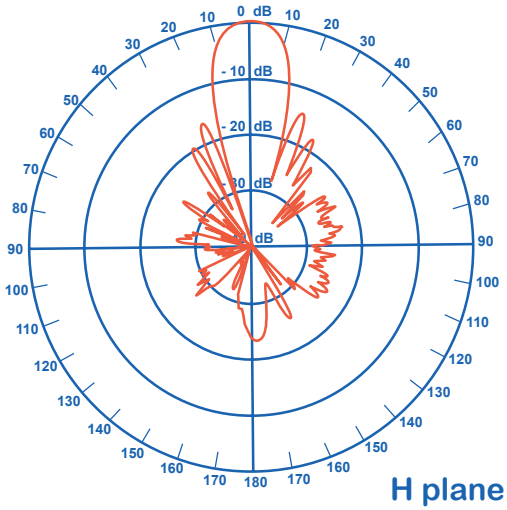
(optimized stacking distance. from center to center of elements. for minimal side lobe radiation)

- E plane - Electrical distance ..... : 3.55 λ
- Pratical distance ..... : 0.82 m
- H plane - Electrical distance ..... : 3.55 λ
- Pratical distance ..... : 0.82 m

Radiation patterns



E plane



H plane

Mechanical data

Connector ..... : N
Overall length ..... : 3.07 m
Mass ..... : 2.5 kg
Effective wind load
- Horizontal polarization ..... : 0.13 m²
- Vertical polarization ..... : 0.11 m²

Approximate wind load (25 m/s - 55 mph)
- Horizontal polarization ..... : 5.0 daN
- Vertical polarization ..... : 4.1 daN

Approximate wind load (45 m/s - 100 mph)
- Horizontal polarization ..... : 16.1 daN
- Vertical polarization ..... : 13.5 daN

55 elements Yagi antenna

1260 to 1300 MHz

Part Nr. 220655

Electrical data

Radiation at 1296 MHz

Effective electrical length ..... : 19.9 λ
Isotropic gain ..... : 21.9 dBi
Aperture angle @ -3 dB
- E-plane ..... : 2 x 6.6°
- H-plane ..... : 2 x 8.7°

First side lobe set
- E-plane ..... : - 10.0 dB @ 17°
- H-plane ..... : - 9.6 dB @ 17°

Rear protection ..... : - 23.7 dB
Average stray radiation
- E-plane ..... : - 42 dB
- H-plane ..... : - 32 dB

Bandwidth

Gain @ -1 dB ..... : 1253 to 1297 MHz
Nominal impedance ..... : 50 Ω
Impedance match bandwidth @ SWR <1.3/1..... : 1290 to 1300 MHz
Acceptable RF power (continous duty) ..... : 300 W

Array of 2 or 4 antennas

(optimized stacking distance. from center to center of elements. for minimal side lobe radiation)

- E plane - Electrical distance ..... : 4.53 λ
- Pratical distance ..... : 1.05 m
- H plane - Electrical distance ..... : 4.53 λ
- Pratical distance ..... : 1.05 m

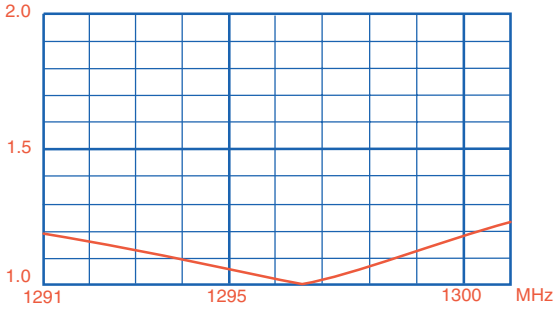
Mechanical data

Connector ..... : N
Overall length ..... : 4.64 m
Mass ..... : 4.0 kg
Effective wind load
- Horizontal polarization ..... : 0.20 m²
- Vertical polarization ..... : 0.12 m²

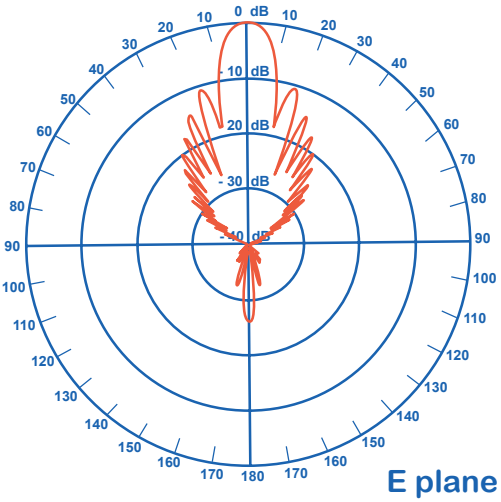
Approximate wind load (25 m/s - 55 mph)
- Horizontal polarization ..... : 7.5 daN
- Vertical polarization ..... : 4.7 daN

Approximate wind load (45 m/s - 100 mph)
- Horizontal polarization ..... : 24.6 daN
- Vertical polarization ..... : 15.1 daN

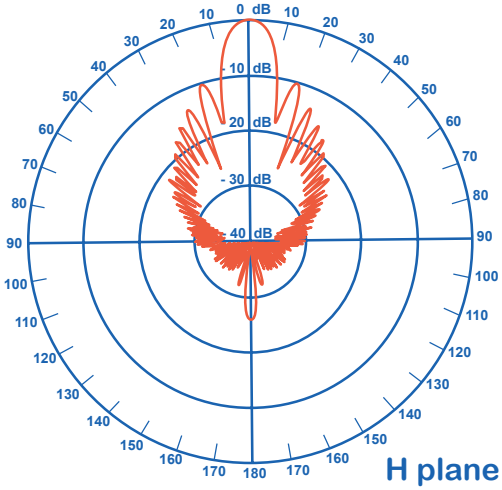
SWR curve



Radiation patterns



E plane



H plane

23 elements Yagi antenna

1240 to 1260 MHz

Part Nr. 220624

Electrical data

Radiation at 1255 MHz

Effective electrical length ..... : 7.61 λ
Isotropic gain ..... : 18.5 dBi
Aperture angle @ -3 dB
- E-plane ..... : 2 x 9.6°
- H-plane ..... : 2 x 9.9°

First side lobe set
- E-plane ..... : - 10.0 dB @ 25°
- H-plane ..... : - 8.7 dB @ 25°

Rear protection ..... : - 19.5 dB
Average stray radiation
- E-plane ..... : - 36 dB
- H-plane ..... : - 28 dB

Bandwidth

Gain @ -1 dB ..... : 1205 to 1271 MHz
Nominal impedance ..... : 50 Ω
Impedance match bandwidth @ SWR <1.3/1..... : 1250 to 1260 MHz
Acceptable RF power (continous duty) ..... : 300 W

Array of 2 or 4 antennas

(optimized stacking distance. from center to center of elements. for minimal side lobe radiation)

- E plane - Electrical distance ..... : 2.95 λ
  - Pratical distance ..... : 0.70 m
- H plane - Electrical distance ..... : 2.95 λ
  - Pratical distance ..... : 0.70 m

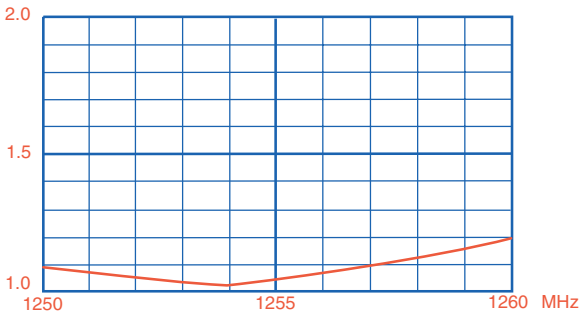
Mechanical data

Connector ..... : N
Overall length ..... : 1.85 m
Mass ..... : 1.4 kg
Effective wind load
- Horizontal polarization ..... : 0.06 m²
- Vertical polarization ..... : 0.05 m²

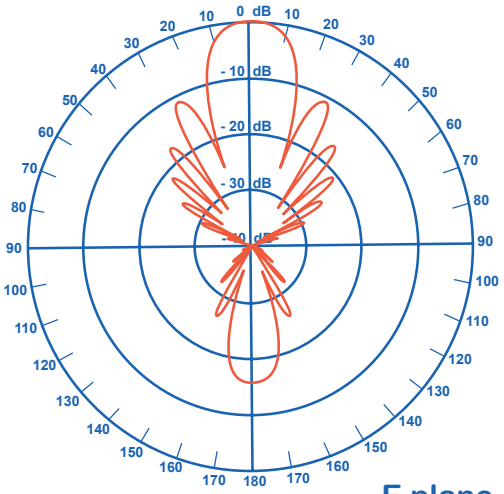
Approximate wind load (25 m/s - 55 mph)
- Horizontal polarization ..... : 2.5 daN
- Vertical polarization ..... : 2.1 daN

Approximate wind load (45 m/s - 100 mph)
- Horizontal polarization ..... : 8.0 daN
- Vertical polarization ..... : 6.7 daN

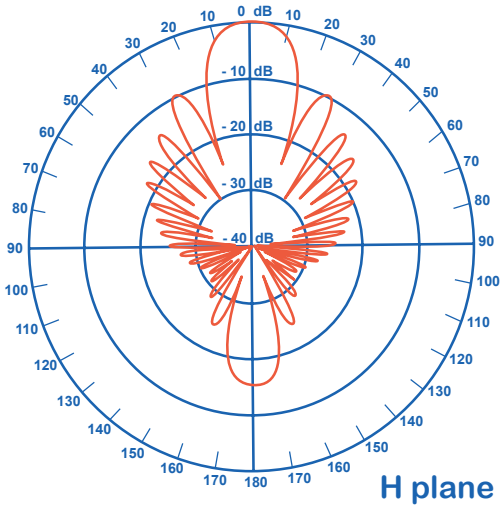
SWR curve



Radiation patterns



E plane



H plane

35 elements Yagi antenna

1240 to 1260 MHz

Part Nr. 220636

Electrical data

Radiation at 1255 MHz

Effective electrical length ..... : 12.83 λ
Isotropic gain ..... : 20.4 dBi
Aperture angle @ -3 dB
- E-plane ..... : 2 x 7.9°
- H-plane ..... : 2 x 8.1°

First side lobe set
- E-plane ..... : - 17.5 dB @ 22°
- H-plane ..... : - 16.5 dB @ 22°

Rear protection ..... : - 22.5 dB
Average stray radiation
- E-plane ..... : - 35 dB
- H-plane ..... : - 30 dB

Bandwidth

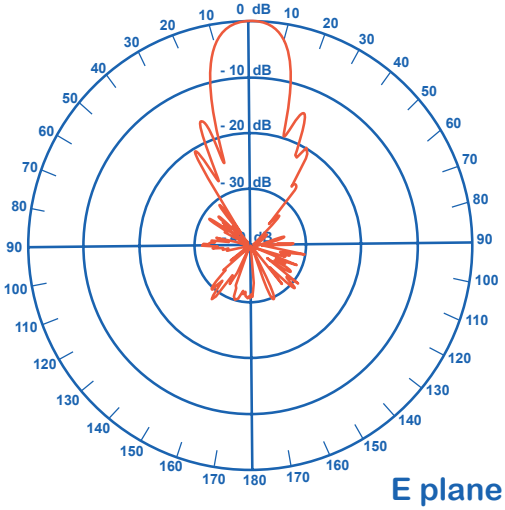
Gain @ -1 dB ..... : 1205 to 1271 MHz
Nominal impedance ..... : 50 Ω
Impedance match bandwidth @ SWR <1.3/1..... : 1251 to 1267 MHz
Acceptable RF power (continous duty) ..... : 300 W

Array of 2 or 4 antennas

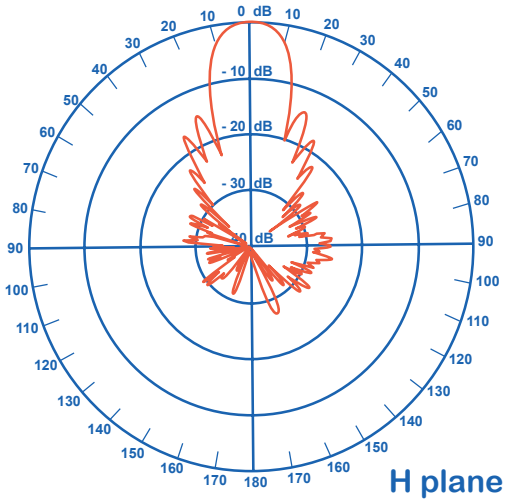
(optimized stacking distance. from center to center of elements. for minimal side lobe radiation)

- E plane - Electrical distance ..... : 3.40 λ
- Pratical distance ..... : 0.82 m
- H plane - Electrical distance ..... : 3.40 λ
- Pratical distance ..... : 0.82 m

Radiation patterns



E plane



H plane

Mechanical data

Connector ..... : N
Overall length ..... : 3.07 m
Mass ..... : 2.5 kg
Effective wind load
- Horizontal polarization ..... : 0.13 m²
- Vertical polarization ..... : 0.11 m²

Approximate wind load (25 m/s - 55 mph)
- Horizontal polarization ..... : 5.0 daN
- Vertical polarization ..... : 4.2 daN

Approximate wind load (45 m/s - 100 mph)
- Horizontal polarization ..... : 16.1 daN
- Vertical polarization ..... : 13.6 daN

55 elements Yagi antenna

1240 to 1260 MHz

Part Nr. 220650

Electrical data

Radiation at 1255 MHz

Effective electrical length ..... : 19.3 λ
Isotropic gain ..... : 21.8 dBi
Aperture angle @ -3 dB
- E-plane ..... : 2 x 6.6°
- H-plane ..... : 2 x 8.7°

First side lobe set
- E-plane ..... : - 10 dB @ 17°
- H-plane ..... : - 9.6 dB @ 17°

Rear protection ..... : - 24.6 dB
Average stray radiation
- E-plane ..... : - 42 dB
- H-plane ..... : - 32 dB

Bandwidth

Gain @ -1 dB ..... : 1233 to 1271 MHz
Nominal impedance ..... : 50 Ω
Impedance match bandwidth @ SWR <1.3/1..... : 1250 to 1260 MHz
Acceptable RF power (continous duty) ..... : 300 W

Array of 2 or 4 antennas

(optimized stacking distance. from center to center of elements. for minimal side lobe radiation)

- E plane - Electrical distance ..... : 4.40 λ
  - Pratical distance ..... : 1.05 m
- H plane - Electrical distance ..... : 4.40 λ
  - Pratical distance ..... : 1.05 m

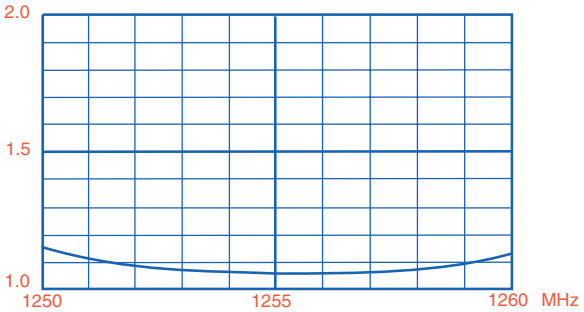
Mechanical data

Connector ..... : N
Overall length ..... : 4.64 m
Mass ..... : 4.0 kg
Effective wind load
- Horizontal polarization ..... : 0.20 m²
- Vertical polarization ..... : 0.12 m²

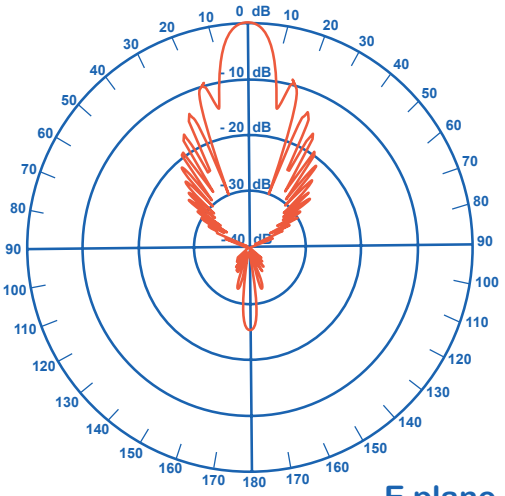
Approximate wind load (25 m/s - 55 mph)
- Horizontal polarization ..... : 7.5 daN
- Vertical polarization ..... : 4.8 daN

Approximate wind load (45 m/s - 100 mph)
- Horizontal polarization ..... : 24.6 daN
- Vertical polarization ..... : 15.2 daN

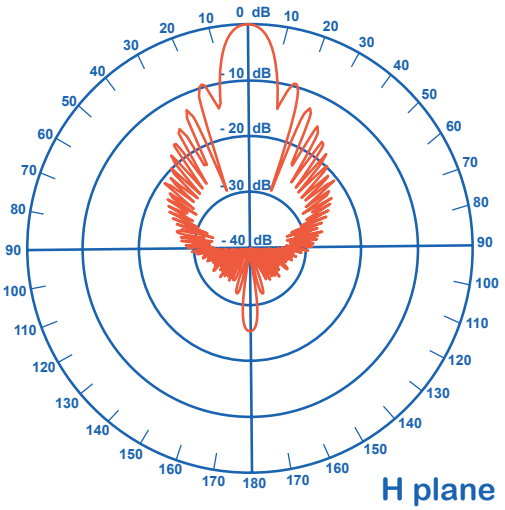
SWR curve



Radiation patterns



E plane



H plane

«Flat line»
Patch antenna

1240 to 1300 MHz

Part Nr. 220614

Electrical data

Radiation at 1296 MHz

Effective electrical length ..... : 0.18 λ
Isotropic gain ..... : 13.8 dBi
Aperture angle @ -3 dB
- E-plane ..... : 2 x 19.1°
- H-plane ..... : 2 x 21.1°

First side lobe set
- E-plane ..... : - 15 dB @ 65°
- H-plane ..... : - 25 dB @ 80°

Rear protection ..... : - 30 dB
Average stray radiation
- E-plane ..... : - 20 dB
- H-plane ..... : - 25 dB

Bandwidth

Gain @ -1 dB ..... : 1240 to 1300 MHz
Nominal impedance ..... : 50 Ω
Impedance match bandwidth @ SWR <1.3/1..... : 1240 to 1300 MHz
Acceptable RF power (CW/FM/PSK) ..... : 150 W

Array of 2 or 4 antennas

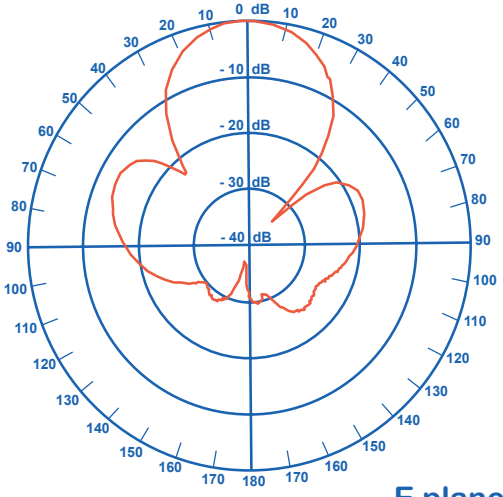
(optimized stacking distance. from center to center of elements. for minimal side lobe radiation)

- E plane - Electrical distance ..... : 1.53 λ
- Pratical distance ..... : 0.35 m
- H plane - Electrical distance ..... : 1.73 λ
- Pratical distance ..... : 0.40 m

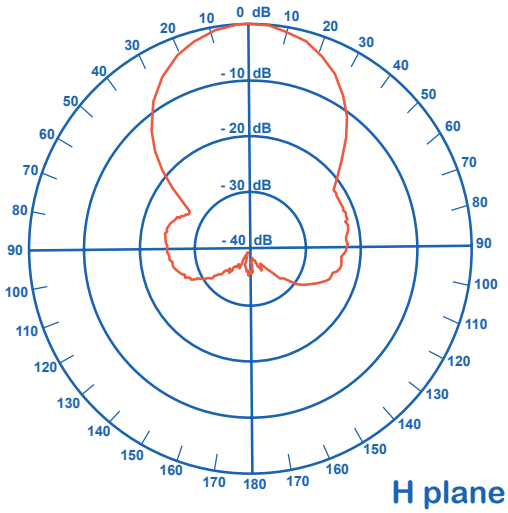
Mechanical data

Connector ..... : N
Overall length ..... : 300 x 390 x 50 mm
Mass ..... : 0.5 kg
Effective wind load ..... : 0.11 m²
Approximate wind load (25 m/s - 55 mph) ..... : 4.1 daN
Approximate wind load (45 m/s - 100 mph) ..... : 13.3 daN

Radiation patterns



E plane



H plane

25 elements Yagi antenna

2300 to 2330 MHz

Part Nr. 220725

Electrical data

Radiation at 2320 MHz

Effective electrical length .....: 9.67 λ
Isotropic gain .....: 18.2 dBi
Aperture angle @ -3 dB
- E-plane .....: 2 x 7.4°
- H-plane .....: 2 x 7.6°

First side lobe set
- E-plane .....: - 11 dB @ 22°
- H-plane .....: - 9.6 dB @ 22°

Rear protection ..... : - 27 dB
Average stray radiation
- E-plane .....: - 23 dB
- H-plane .....: - 22 dB

Bandwidth

Gain @ -1 dB .....: 2200 to 2330 MHz
Nominal impedance ..... : 50 Ω
Impedance match bandwidth @ SWR <1.3/1..... : 2280 to 2330 MHz
Acceptable RF power (continous duty) .....: 200 W

Array of 2 or 4 antennas

(optimized stacking distance. from center to center of elements. for minimal side lobe radiation)

- E plane - Electrical distance .....: 3.33 λ
  - Pratical distance ..... : 0.43 m
- H plane - Electrical distance ..... : 3.33 λ
  - Pratical distance ..... : 0.43 m

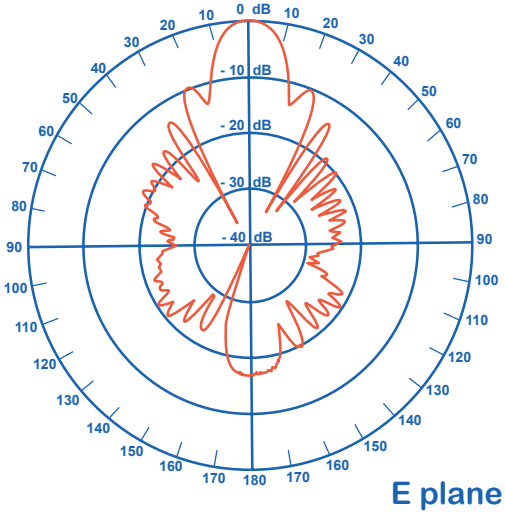
Mechanical data

Connector ..... : N
Overall length .....: 1.45 m
Mass ..... : 0.95 kg
Effective wind load
- Horizontal polarization .....: 0.056 m²
- Vertical polarization ..... : 0.032 m²

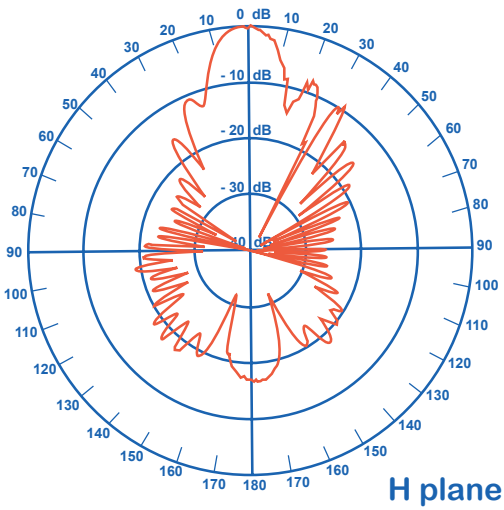
Approximate wind load (25 m/s - 55 mph)
- Horizontal polarization .....: 2.2 daN
- Vertical polarization ..... : 1.2 daN

Approximate wind load (45 m/s - 100 mph)
- Horizontal polarization ..... : 6.9 daN
- Vertical polarization ..... : 4.0 daN

Radiation patterns



E plane



H plane

25 elements Yagi antenna

2300 to 2420 MHz

Part Nr. 220745

Electrical data

Radiation at 2400 MHz

Effective electrical length ..... : 10.0 λ
Isotropic gain ..... : 18.1 dBi
Aperture angle @ -3 dB
- E-plane ..... : 2 x 7.2°
- H-plane ..... : 2 x 7.3°

First side lobe set
- E-plane ..... : - 11 dB @ 22°
- H-plane ..... : - 9.5 dB @ 22°

Rear protection ..... : - 25 dB
Average stray radiation
- E-plane ..... : - 23 dB
- H-plane ..... : - 22 dB

Bandwidth

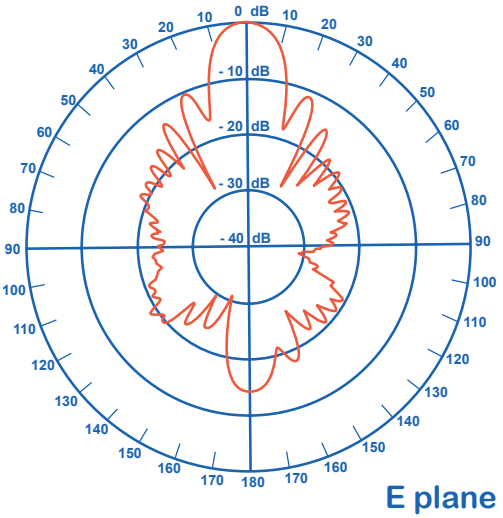
Gain @ -1 dB ..... : 2300 to 2450 MHz
Nominal impedance ..... : 50 Ω
Impedance match bandwidth @ SWR <1.3/1..... : 2300 to 2420 MHz
Acceptable RF power (continous duty) ..... : 200 W

Array of 2 or 4 antennas

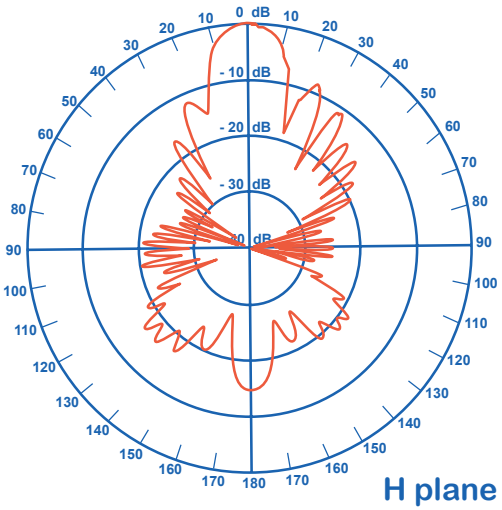
(optimized stacking distance. from center to center of elements. for minimal side lobe radiation)

- E plane - Electrical distance ..... : 3.33 λ
- Pratical distance ..... : 0.42 m
- H plane - Electrical distance ..... : 3.33 λ
- Pratical distance ..... : 0.42 m

Radiation patterns



E plane



H plane

Mechanical data

Connector ..... : N
Overall length ..... : 1.45 m
Mass ..... : 0.95 kg
Effective wind load
- Horizontal polarization ..... : 0.056 m²
- Vertical polarization ..... : 0.032 m²

Approximate wind load (25 m/s - 55 mph)
- Horizontal polarization ..... : 2.2 daN
- Vertical polarization ..... : 1.2 daN

Approximate wind load (45 m/s - 100 mph)
- Horizontal polarization ..... : 6.9 daN
- Vertical polarization ..... : 4.0 daN

«Flat line»
Patch antenna

2400 to 2500 MHz

Part Nr. 220701

Electrical data

Radiation at 1296 MHz

Effective electrical length .....: 1 λ
Isotropic gain .....: 9 dBi
Aperture angle @ -3 dB
- E-plane .....: 2 x 27°
- H-plane .....: 2 x 20°

First side lobe set
- E-plane .....: None
- H-plane .....: None

Rear protection ..... : - 20 dB
Average stray radiation
- E-plane .....: -
- H-plane .....: -

Bandwidth

Gain @ -1 dB .....: 2400 to 2500 MHz
Nominal impedance ..... : 50 Ω
Impedance match bandwidth @ SWR <1.3/1..... : 2400 to 2500 MHz
Acceptable RF power (CW/FM/PSK) .....: 10 W

Mechanical data

Connector ..... : SMA
Overall length .....: 300 x 390 x 50 mm
Mass ..... : 0.385 kg
Effective wind load
- Horizontal polarization .....: 0.023 m²
- Vertical polarization ..... : 0.004 m²

Approximate wind load (25 m/s - 55 mph)
- Horizontal polarization .....: 0,88daN
- Vertical polarization ..... : 0,15 daN

Approximate wind load (45 m/s - 100 mph)
- Horizontal polarization ..... : 2,84 daN
- Vertical polarization ..... : 0,49 daN

«Flat line»
Patch antenna

2400 to 2500 MHz

Part Nr. 220702

Electrical data

Radiation at 1296 MHz

Effective electrical length .....: 1 λ
Isotropic gain .....: 12 dBi
Aperture angle @ -3 dB
- E-plane .....: 2 x 27°
- H-plane .....: 2 x 20°

First side lobe set
- E-plane .....: None
- H-plane .....: None

Rear protection ..... : - 20 dB
Average stray radiation
- E-plane .....: -
- H-plane .....: -

Bandwidth

Gain @ -1 dB .....: 2400 to 2500 MHz
Nominal impedance ..... : 50 Ω
Impedance match bandwidth @ SWR <1.3/1..... : 2400 to 2500 MHz
Acceptable RF power (CW/FM/PSK) .....: 10 W

Mechanical data

Connector ..... : SMA
Overall length .....: 300 x 390 x 50 mm
Mass ..... : 0.385 kg
Effective wind load
- Horizontal polarization .....: 0.023 m²
- Vertical polarization ..... : 0.004 m²

Approximate wind load (25 m/s - 55 mph)
- Horizontal polarization .....: 0,88daN
- Vertical polarization ..... : 0,15 daN

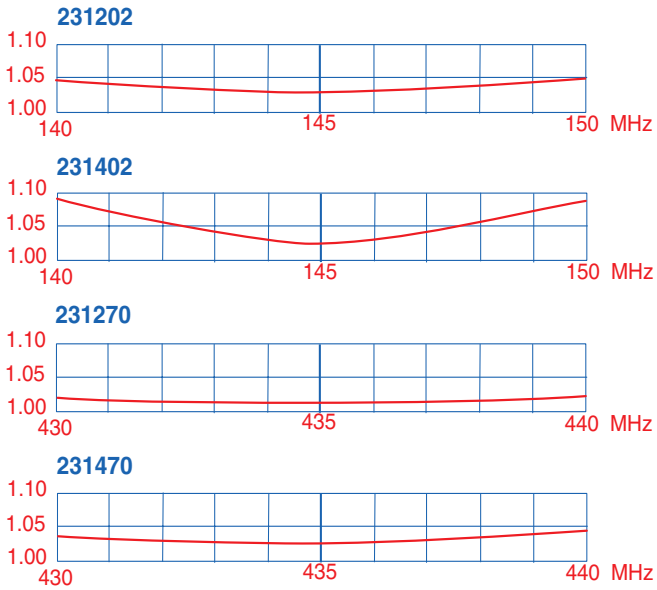
Approximate wind load (45 m/s - 100 mph)
- Horizontal polarization ..... : 2,84 daN
- Vertical polarization ..... : 0,49 daN

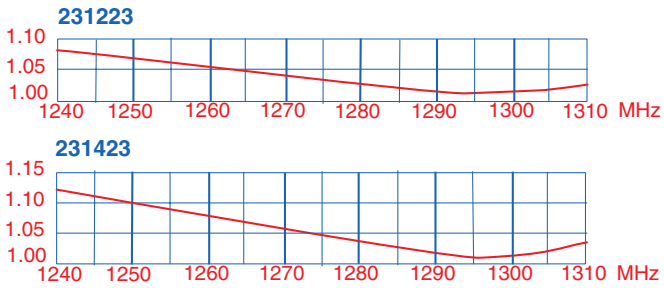
Power splitters

The power splitters transform the impedance obtained at the feed point of antenna stack to the nominal impedance of the feed line (50 Ω). They are made of piece of tubing having an inner length of one quater wavelength. Thet are fitted at one end with a connector on which the feed line is attached, and on the other end, with two or four connectors, according to case, on which are attached the phasing lines coming down from each antenna. Type N female 50 Ω connectors (UG58A/U) are used.

Important ! the impedance matching function of the power splitter is completely independant from the choosen style of stacking (Phased antenna array, circular polarization, etc.). The radiating properties of the array only depend upon the antennas themselves, their spacings, as well as upon the phasing line lengths.

Part Nr.	Type	Attenuation	TOS	Overall length
231202	2 port 144/146 MHz	0.05 dB	< 1.1/1	540 mm
231402	4 port 144/146 MHz	0.05 dB	< 1.1/1	540 mm
231270	2 port 430/440 MHz	0.05 dB	< 1.1/1	196 mm
231470	4 port 430/440 MHz	0.05 dB	< 1.1/1	196 mm
231223	2 port 1250/1300 MHz	0.10 dB	< 1.1/1	81 mm
231423	4 port 1250/1300 MHz	0.10 dB	< 1.1/1	81 mm
231213	2 port 2300/2400 MHz	0.15 dB	< 1.1/1	55 mm
231413	4 port 2300/2400 MHz	0.15 dB	< 1.1/1	55 mm





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