



## Yagi and other directional Antennas 146 - 174 MHz

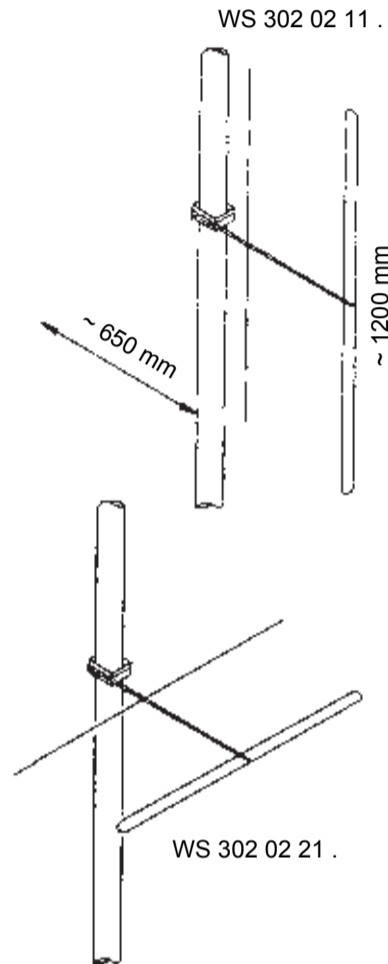
ORDER NUMBER	TYPE
WS 302 02 .1 8	2 element yagi
WS 302 03 .1 8	2 element yagi, heavy duty with radome
WS 303 02 .1 8	3 element yagi
WS 303 03 .1 8	3 element yagi, heavy duty with radome
WS 304 02 .1 8	4 element yagi
WS 304 03 .1 8	4 element yagi, heavy duty with radome
WS 305 02 .1 8	5 element yagi
WS 306 02 .1 8	6 element yagi
WS 306 03 .1 8	6 element yagi, heavy duty with radome
WS 306 02 12 8	6 element yagi
WS 306 03 12 8	6 element yagi, heavy duty with radome
WS 306 02 23 8	6 element yagi
WS 306 03 23 8	6 element yagi, heavy duty with radome
WS 309 02 12 8	9 element yagi
WS 309 03 12 8	9 element yagi, heavy duty with radome
WS 309 02 23 8	9 element yagi
WS 309 03 23 8	9 element yagi, heavy duty with radome
WS 312 02 12 8	12 element yagi
WS 312 03 12 8	12 element yagi, heavy duty with radome
WS 312 02 23 8	12 element yagi
WS 312 03 23 8	12 element yagi, heavy duty with radome
WS 342 02 12 9	3 dB bidirectional antenna
WS 342 03 12 9	3 dB bidirectional antenna, heavy duty with radome
WS 343/5 02/3 12 9	bidirectional antennas, combined types
WS 344/6 02/3 12 9	bidirectional antennas, combined types
WS 348 02 12 9	4.5 dB bidirectional antenna
WS 348 03 12 9	4.5 dB bidirectional antenna, heavy duty with radome
WS 351 02 11	directional antenna kleewi
WS 351 03 11	directional antenna kleewi, heavy duty with radome
WS 352 02/3 11	6 dB directional antenna kleewi
WS .80 22 31 1	log periodics

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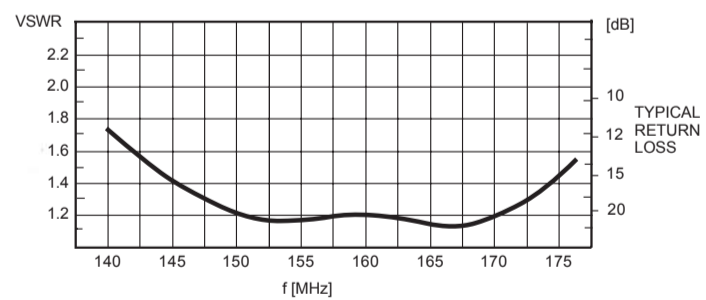
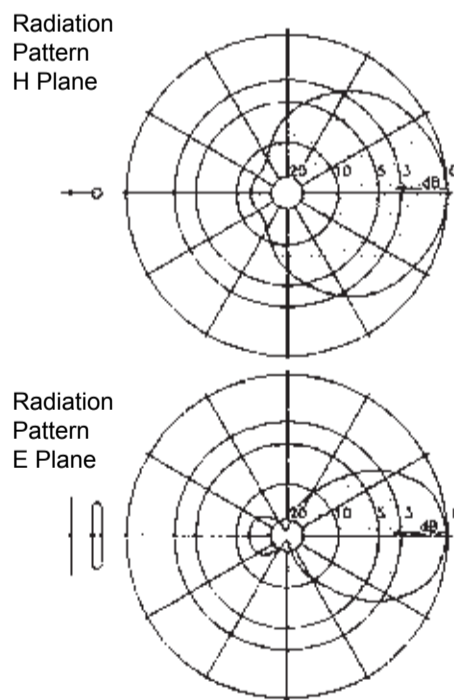
**2-ELEMENT YAGI ANTENNA**

**WS 302 02 .1 8**

**146 - 174 MHz**



<b>TYPE NO.</b>	vertical polarization <b>WS 302 02 11 8: 146 - 174 MHz</b> horizontal polarization <b>WS 302 02 21 8: 146 - 174 MHz</b> further frequencies on request
<b>IMPEDANCE</b>	50 Ω
<b>GAIN</b>	3.5 dB (ref. λ/2 dipole)
<b>VSWR</b>	< 1.3, at the limits of the band <1.4
<b>POWER</b>	max. 150 watts, higher power on request
<b>3 dB BEAMWIDTH</b>	in polarization, E-plane: 74° in H-plane: 130°
<b>TERMINATION</b>	2 m cable RG 213/U ending with N male other termination on request
<b>GROUNDING</b>	all metal parts are DC grounded
<b>MOUNTING</b>	<i>mast-ø</i> <i>clamp</i> 30 - 80 mm    WG 11 (standard) 50 - 104 mm   WG 12 (option) clamp for other mast-ø on request
<b>MATERIAL</b>	aluminium, bolts of stainless steel, weather-resistant plastics
<b>WEIGHT</b>	1.8 kg
<b>WIND AREA</b>	0.05 m <sup>2</sup>
<b>WIND LOAD</b>	65 N (150 km/h) 50 N (130 km/h)

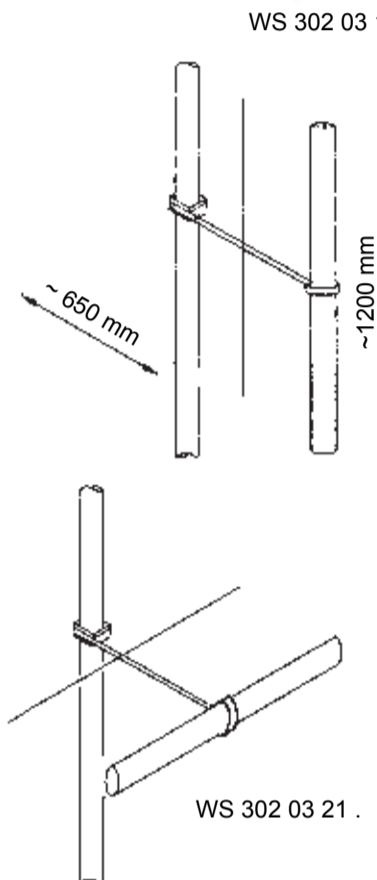


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WIPIC reserves the right to amend specifications in the light of continuing development.

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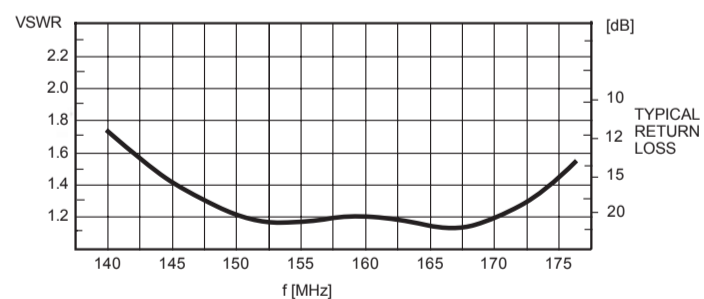
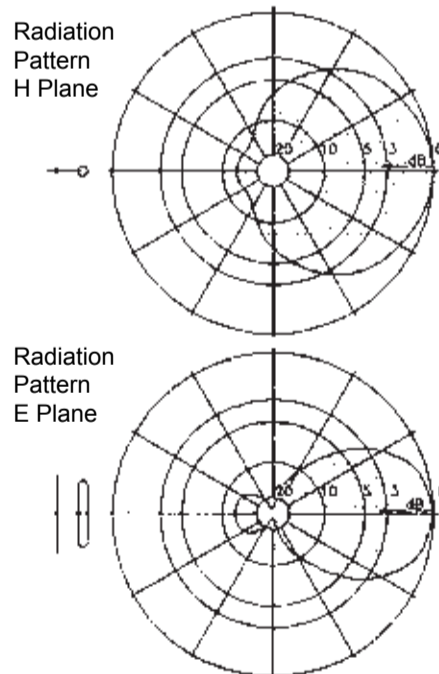
**2-ELEMENT YAGI ANTENNA**  
**WS 302 03 .1 8**  
**146 - 174 MHz**



WS 302 03 11 . TYPE NO.

vertical polarization  
**WS 302 03 11 8: 146 - 174 MHz**  
horizontal polarization  
**WS 302 03 21 8: 146 - 174 MHz**

- DESCRIPTION** heavy duty, with radome  
The radome protects the antenna dipole from environmental influences, icing, and increases the lightning protection.
- IMPEDANCE** 50  $\Omega$
- GAIN** 3.5 dB (ref.  $\lambda/2$  dipole)
- VSWR** < 1.3, at the limits of the band < 1.4
- POWER** max. 150 watts, higher power on request
- 3 dB BEAMWIDTH** in polarization, E-plane: 74°  
vertical to pol., H-plane: 130°
- TERMINATION** 2 m cable RG 213/U ending with N male  
other termination on request
- GROUNDING** all metal parts are DC grounded
- MOUNTING** mast- $\phi$  clamp  
30 - 80 mm WG 17 (standard)  
50 - 104 mm WG 18 (option)  
clamp for other mast- $\phi$  on request
- MATERIAL** aluminium, bolts of stainless steel, weather-resistant  
plastics, radome of UV-stabilized polyethylene
- WEIGHT** 4.1 kg  
**WIND AREA** 0.13 m<sup>2</sup>  
**WIND LOAD** 166 N (150 km/h)  
124 N (130 km/h)

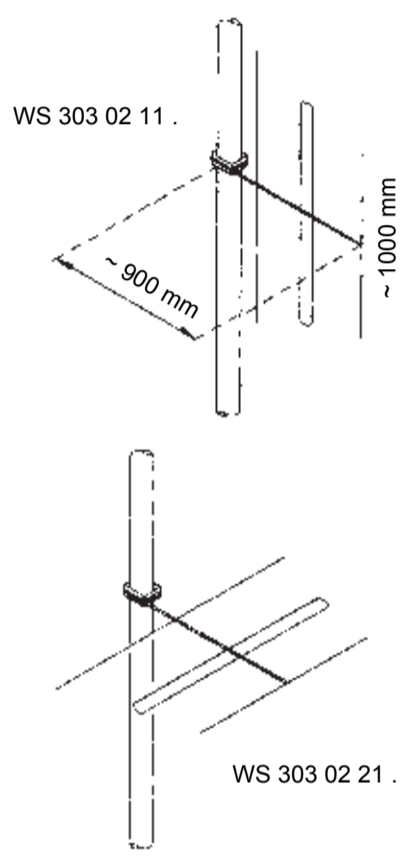


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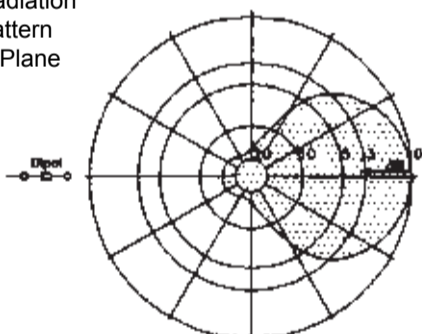
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**3-ELEMENT YAGI ANTENNA**  
**WS 303 02 .1 8**  
**146 - 174 MHz**

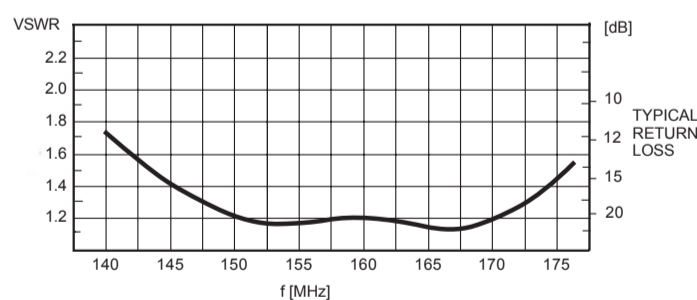
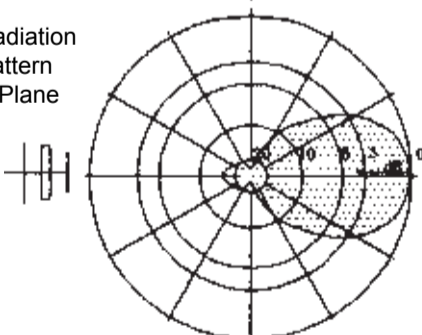


<b>TYPE NO.</b>	<b>WS 303 02 11 8: 146 - 174 MHz vertical polarization</b> <b>WS 303 02 21 8: 146 - 174 MHz horizontal polarization</b> further frequencies on request
<b>IMPEDANCE</b>	50 Ω
<b>GAIN</b>	5 dB (ref. λ/2 dipole)
<b>VSWR</b>	< 1.3, at the limits of the band <1.4
<b>POWER</b>	max. 150 watts
<b>3 dB BEAMWIDTH</b>	vertical to pol., H-plane: 110° in polarization, E-plane: 66°
<b>TERMINATION</b>	2 m cable RG 213/U ending with N male other termination on request
<b>GROUNDING</b>	all metal parts are DC grounded
<b>MOUNTING</b>	<i>mast-ø</i> <i>clamp</i> 30 - 80 mm                  WG 11 (standard) 50 - 104 mm                WG 12 (option) clamp for other mast-ø on request
<b>MATERIAL</b>	aluminium, bolts of stainless steel, weather-resistant plastics
<b>WEIGHT</b>	2.0 kg
<b>WIND AREA</b>	0.07 m <sup>2</sup>
<b>WIND LOAD</b>	90 N (150 km/h) 67 N (130 km/h)

Radiation  
Pattern  
H Plane



Radiation  
Pattern  
E Plane



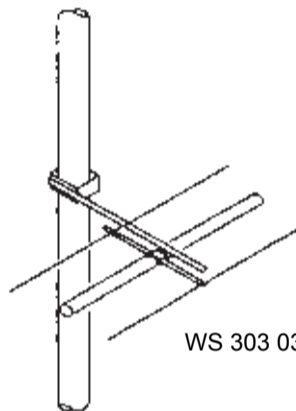
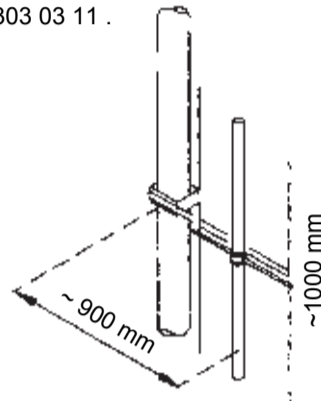
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**3-ELEMENT YAGI ANTENNA**  
**WS 303 03 .1 8**  
**146 - 174 MHz**

WS 303 03 11 .



WS 303 03 21 .

**TYPE NO.** **WS 303 03 11 8: 146 - 174 MHz** vertical polarization  
**WS 303 03 21 8: 146 - 174 MHz** horizontal polarization  
 further frequencies on request

**DESCRIPTION** heavy duty, with radome  
 The radome protects the antenna dipole from environmental influences, icing, and increases the lightning protection.

**IMPEDANCE** 50  $\Omega$

**GAIN** 5 dB (ref.  $\lambda/2$  dipole)

**VSWR** < 1.3, at the limits of the band < 1.4

**POWER** max. 150 watts

**3 dB BEAMWIDTH** vertical to pol., H-plane: 110°  
 in polarization, E-plane: 66°

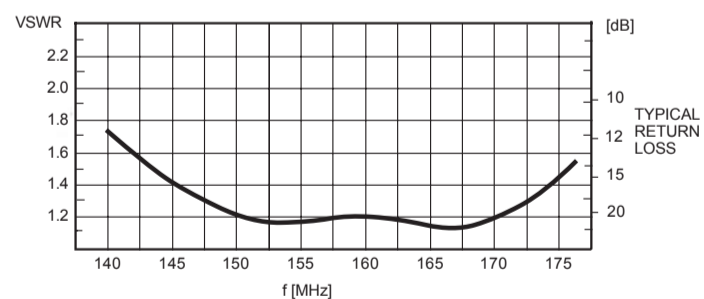
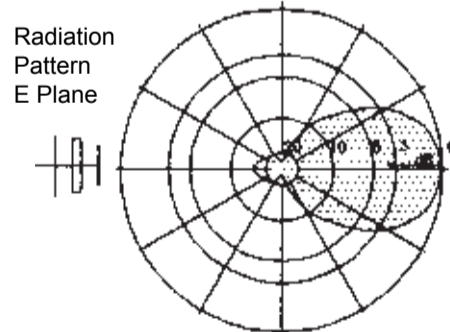
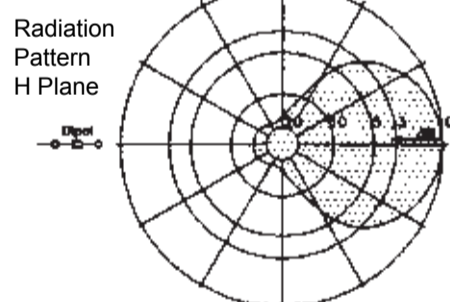
**TERMINATION** 2 m cable RG 213/U ending with N male  
 other termination on request

**GROUNDING** all metal parts are DC grounded

**MOUNTING** *mast- $\emptyset$*  *clamp*  
 30 - 80 mm WG 15 (standard)  
 50 - 104 mm WG 16 (option)  
 clamp for other mast- $\emptyset$  on request

**MATERIAL** aluminium, bolts of stainless steel, weather-resistant  
 plastics, radome of UV-stabilized polyethylene

**WEIGHT** 4.3 kg  
**WIND AREA** 0.14 m<sup>2</sup>  
**WIND LOAD** 180 N (150 km/h)  
 135 N (130 km/h)



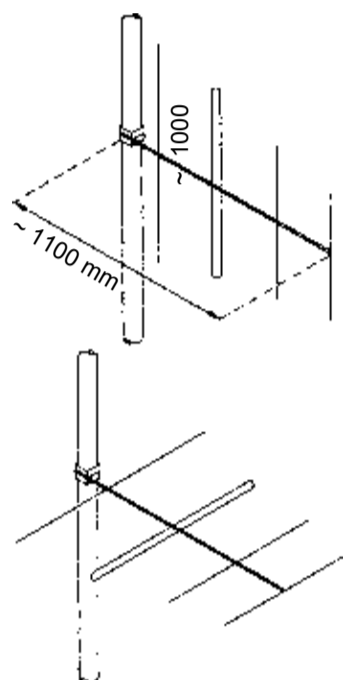
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**4 ELEMENT YAGI ANTENNA  
WS 304 02 .1 8  
146 - 174 MHz**

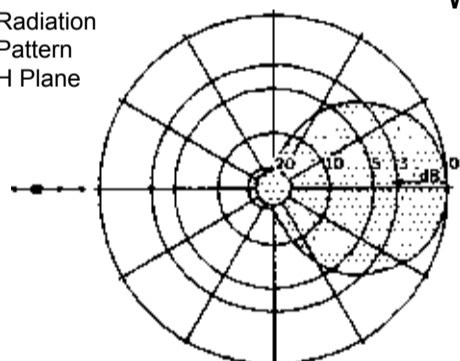
WS 304 02 11 8



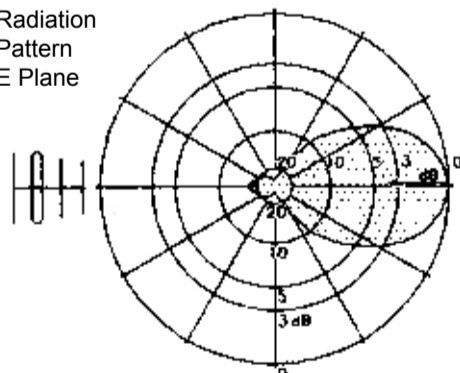
WS 304 02 21 .

<b>TYPE NO.</b>	<b>WS 304 02 11 8: 146 - 174 MHz vertical polarization</b> <b>WS 304 02 21 8: 146 - 174 MHz horizontal polarization</b> further frequencies on request
<b>IMPEDANCE</b>	50 Ω
<b>GAIN</b>	6.5 dB (ref. λ/2 dipole)
<b>VSWR</b>	< 1.3, at the limits of the band <1.4
<b>POWER</b>	max. 150 watts
<b>3 dB BEAMWIDTH</b>	vertical to pol., H-plane: 90° in polarization, E-plane: 58°
<b>TERMINATION</b>	2 m cable RG 213/U ending with N male other termination on request
<b>GROUNDING</b>	all metal parts are DC grounded
<b>MOUNTING</b>	<i>mast-ø</i> <i>clamp</i> 30 - 80 mm                WG 11 (standard) 50 - 104 mm              WG 12 (option) clamp for other mast-ø on request
<b>MATERIAL</b>	aluminium, bolts of stainless steel, weather-resistant plastics
<b>WEIGHT</b>	2.1 kg
<b>WIND AREA</b>	0.08 m <sup>2</sup>
<b>WIND LOAD</b>	100 N (150 km/h) 75 N (130 km/h)

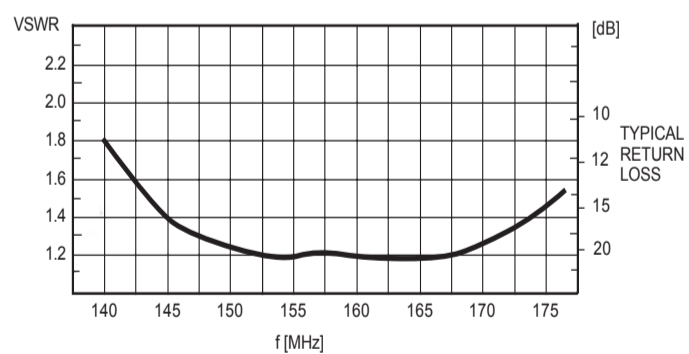
Radiation Pattern H Plane



Radiation Pattern E Plane



KW 1-08



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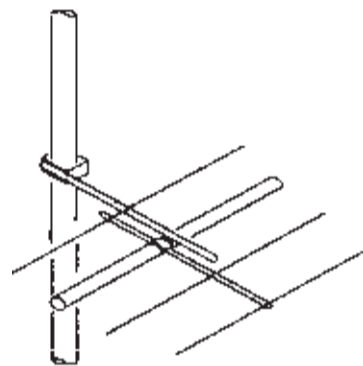
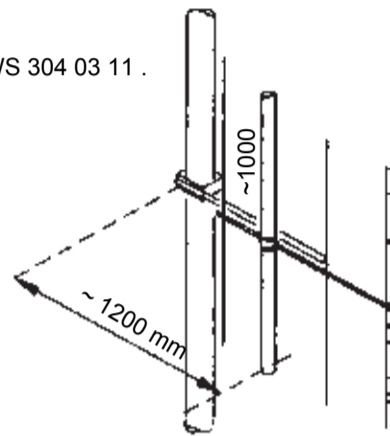
**wipic**

**4 ELEMENT YAGI ANTENNA**

**WS 304 03 .1 8**

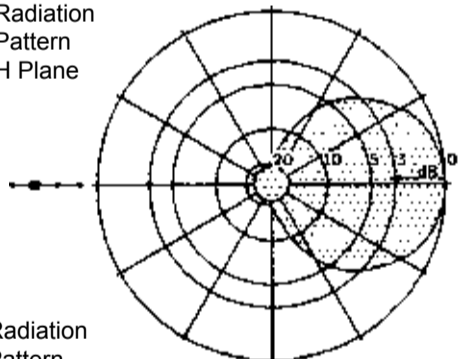
**146 - 174 MHz**

WS 304 03 11 .

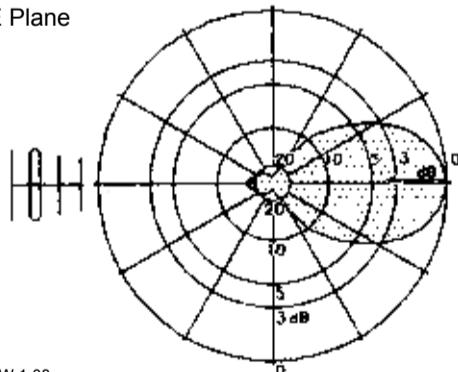


WS 304 03 21 .

Radiation  
Pattern  
H Plane



Radiation  
Pattern  
E Plane



KW 1-08

**TYPE NO.**

vertical polarization  
**WS 304 03 11 8: 146 - 174 MHz**  
horizontal polarization  
**WS 304 03 21 8: 146 - 174 MHz**  
further frequencies on request

**DESCRIPTION**

heavy duty, with radome  
The radome protects the antenna dipole from environmental influences, icing, and increases the lightning protection.

**IMPEDANCE**

50 Ω

**GAIN**

6.5 dB (ref. λ/2 dipole)

**VSWR**

< 1.2, at the limits of the band <1.4

**POWER**

max. 150 watts

**3 dB BEAMWIDTH**

in polarization, E-plane: 58°  
vertical to pol., H-plane: 90°

**TERMINATION**

2 m cable RG 213/U ending with N male  
other termination on request

**GROUNDING**

all metal parts are DC grounded

**MOUNTING**

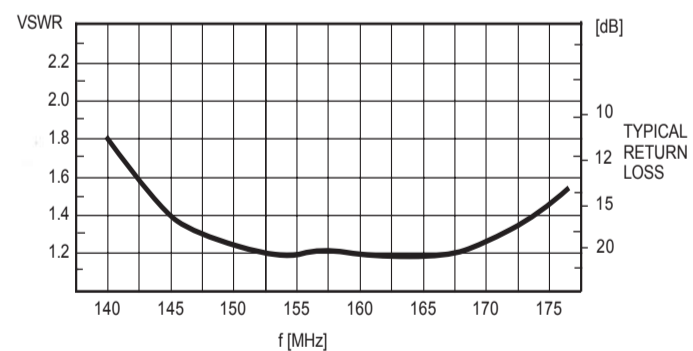
*mast-ø*                      *clamp*  
30 - 80 mm                WG 17 (standard)  
50 - 104 mm              WG 18 (option)  
clamp for other mast-ø on request

**MATERIAL**

aluminium, bolts of stainless steel, weather-resistant  
plastics, radome of UV-stabilized polyethylene

**WEIGHT  
WIND AREA  
WIND LOAD**

6.4 kg  
0.26 m<sup>2</sup>  
330 N (150 km/h)  
250 N (130 km/h)

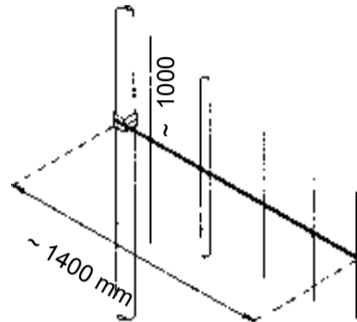


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**5 ELEMENT YAGI ANTENNA  
WS 305 02 .1 8  
146 - 174 MHz**

WS 305 02 11 .



**TYPE NO.** WS 305 02 11 8: 146 - 174 MHz vertical polarization  
WS 305 02 21 8: 146 - 174 MHz horizontal polarization  
further frequencies on request

**IMPEDANCE** 50  $\Omega$

**GAIN** 7.5 dB (ref.  $\lambda/2$  dipole)

**VSWR** < 1.3, at the limits of the band < 1.4

**POWER** max. 150 watts

**3 dB BEAMWIDTH** vertical to pol., H-plane: 70°  
in polarization, E-plane: 53°

**TERMINATION** 2 m cable RG 213/U ending with N male  
other termination on request

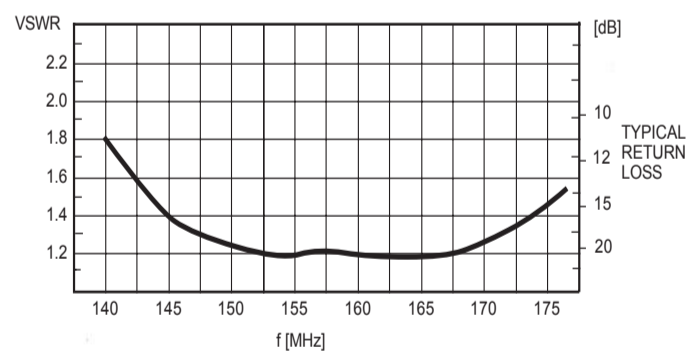
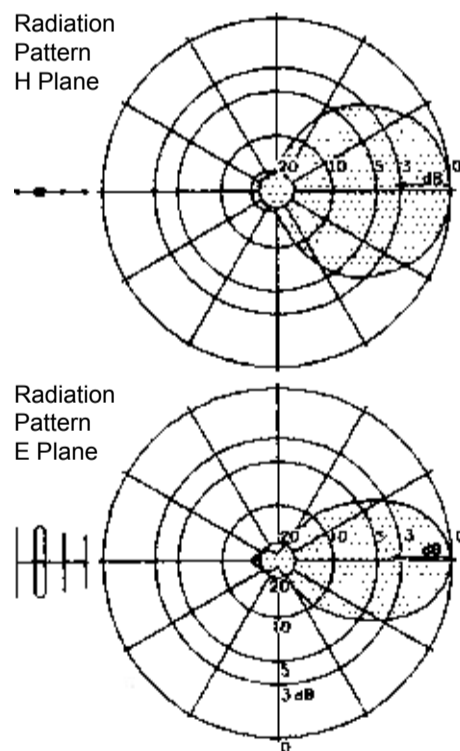
**GROUNDING** all metal parts are DC grounded

**MOUNTING**

<i>mast-<math>\phi</math></i>	<i>clamp</i>
30 - 80 mm	WG 11 (standard)
50 - 104 mm	WG 12 (option)
clamp for other mast- $\phi$ on request	

**MATERIAL** aluminium, bolts of stainless steel, weather-resistant plastics

**WEIGHT** 2.2 kg  
**WIND AREA** 0.09 m<sup>2</sup>  
**WIND LOAD** 114 N (150 km/h)  
86 N (130 km/h)



KW 2-08

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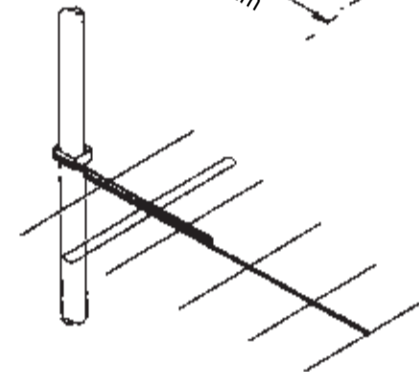
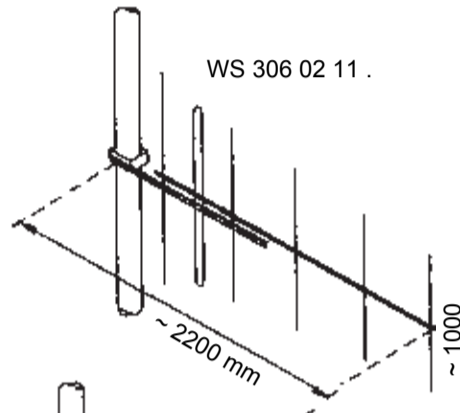


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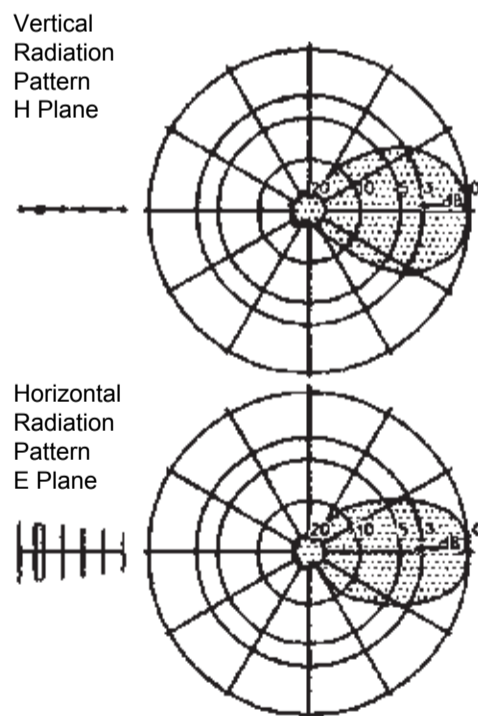
**6-ELEMENT YAGI ANTENNA**

**WS 306 02 .1 8**

**146 - 174 MHz**

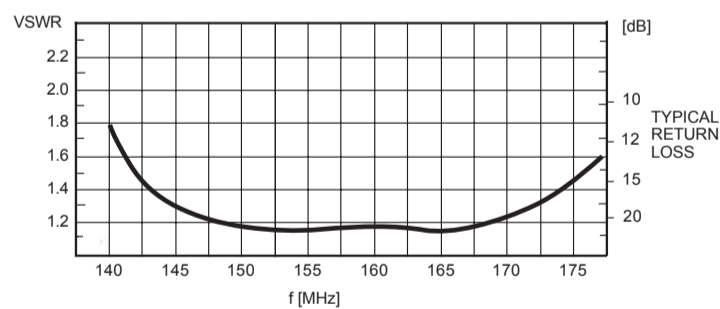


WS 306 03 21 .



KW 1-08

<b>TYPE NO.</b>	<b>WS 306 02 11 8: 146 - 174 MHz vertical polarization</b> <b>WS 306 02 21 8: 146 - 174 MHz horizontal polarization</b> further frequencies on request
<b>IMPEDANCE</b>	50 Ω
<b>GAIN</b>	8.5 dB (ref. to λ/2 dipole) F/B: ~ 20 dB
<b>VSWR</b>	< 1.3, at the limits of the band < 1.4
<b>POWER</b>	max. 150 watts, higher power on request
<b>3 dB BEAMWIDTH</b>	in polarization, E-plane: 48° vertical to pol. H-plane: 70°
<b>TERMINATION</b>	2 m cable RG 213/U ending with N male other termination on request
<b>GROUNDING</b>	all metal parts are DC grounded
<b>MOUNTING</b>	<i>mast ø</i> <i>clamp (see chapt. 10)</i> 30 - 80 mm    WG 15 (standard) 50 - 104 mm   WG 16 (option) clamp for other mast ø on request
<b>MATERIAL</b>	aluminium, bolts of stainless steel, weather-resistant plastics
<b>WEIGHT</b>	3.5 kg
<b>WIND AREA</b>	0.13 m²
<b>WIND LOAD</b>	166 N 150 km/h 125 N 130 km/h



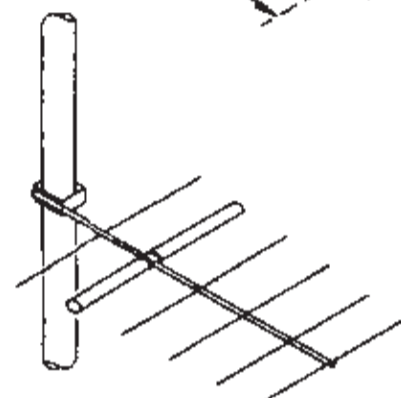
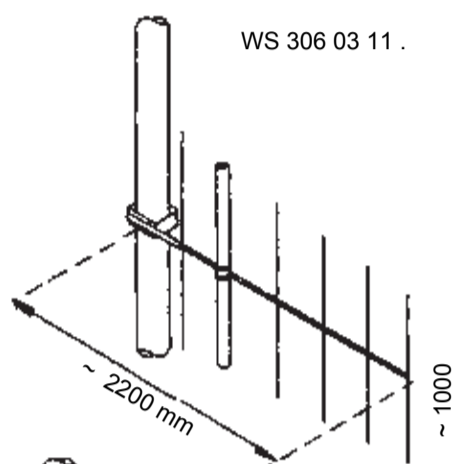
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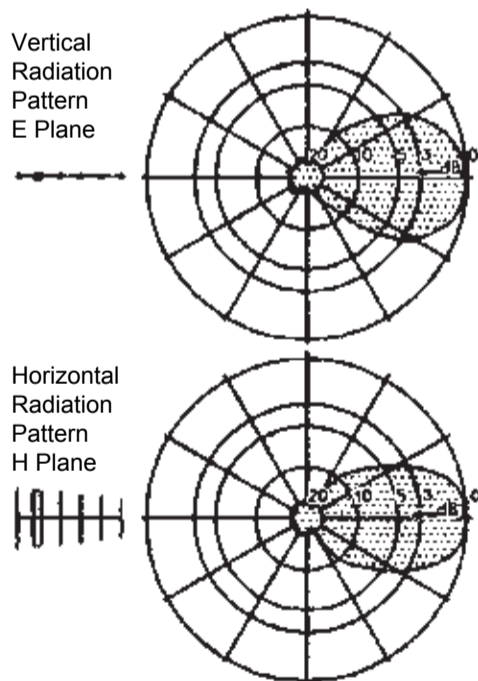
**6-ELEMENT YAGI ANTENNA**

**WS 306 03 .1 8**

**146 - 174 MHz**

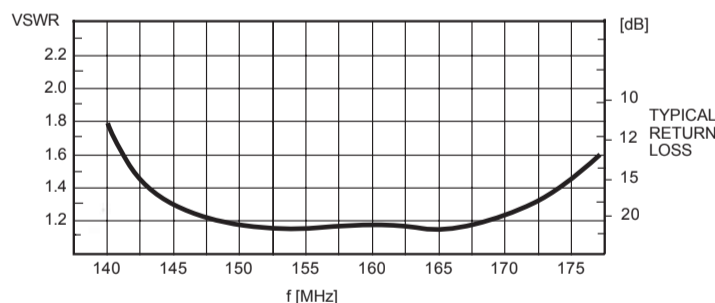


WS 306 03 21 .



KW 1-08

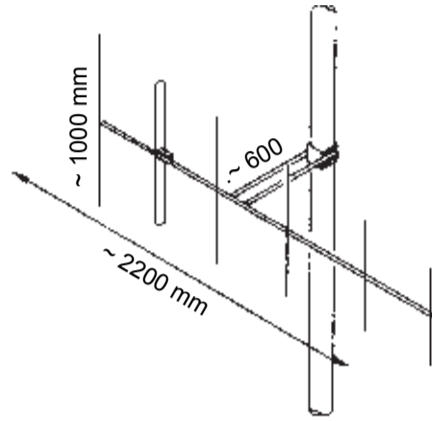
<b>TYPE NO.</b>	<b>WS 306 03 11 8: 146 - 174 MHz vertical polarization</b> <b>WS 306 03 21 8: 146 - 174 MHz horizontal polarization</b> further frequencies on request
<b>DESCRIPTION</b>	heavy duty, with radome The radome protects the antenna dipole from environmental influences, icing, and increases the lightning protection
<b>IMPEDANCE</b>	50 Ω
<b>GAIN</b>	8.5 dB (ref. to λ/2 dipol) F/B: ~ 20 dB
<b>VSWR</b>	< 1.3, at the limits of the band < 1.4
<b>POWER</b>	max. 150 watts, higher power on request
<b>3 dB BEAMWIDTH</b>	in polarization, E-plane: 48° vertical to pol. H-plane: 70°
<b>TERMINATION</b>	2 m cable RG 213/U ending with N male other termination on request
<b>GROUNDING</b>	all metal parts are DC grounded
<b>MOUNTING</b>	<i>mast ø</i> <i>clamp (see chapt. 10)</i> 30 - 80 mm    WG 17 (standard) 50 - 104 mm   WG 18 (option) clamp for other mast ø on request
<b>MATERIAL</b>	aluminium, bolts of stainless steel, weather-resistant plastics , radome of UV-stabilized polyethylene
<b>WEIGHT</b>	7.2 kg
<b>WIND AREA</b>	0.26 m <sup>2</sup>
<b>WIND LOAD</b>	330 N 150 km/h 250 N 130 km/h



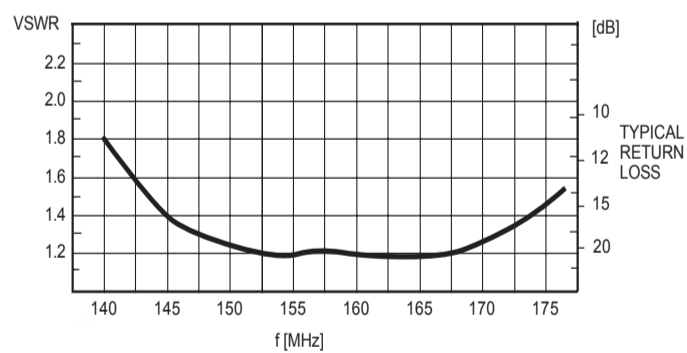
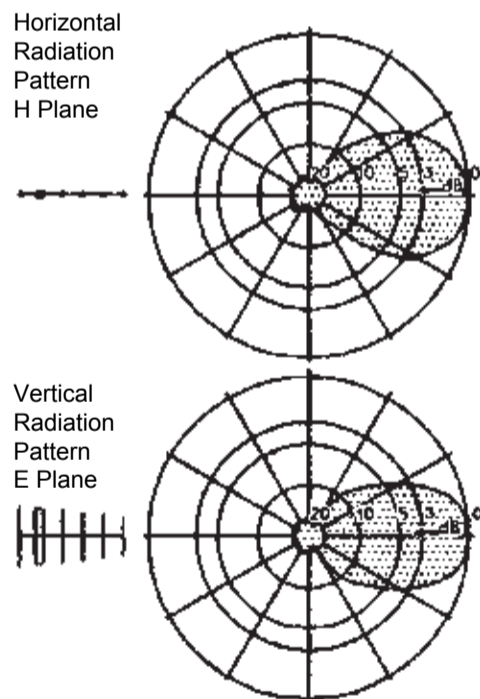
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**6-ELEMENT YAGI ANTENNA**  
**WS 306 02 12 8**  
**146 - 174 MHz**



<b>TYPE NO.</b>	<b>WS 306 02 12 8: 146 - 174 MHz</b> further frequencies on request
<b>POLARIZATION</b>	vertical
<b>IMPEDANCE</b>	50 $\Omega$
<b>GAIN</b>	8.5 dB (ref. $\lambda/2$ dipole) 10.5 dB (ref. isotropic radiator) F/B: $\sim$ 18 dB
<b>VSWR</b>	$< 1.3$ , at the limits of the band $< 1.4$
<b>POWER</b>	max. 150 watts
<b>3 dB BEAMWIDTH</b>	horizontal, H plane: $70^\circ$ vertical, E plane: $48^\circ$
<b>TERMINATION</b>	2 m cable RG 213/U ending with N male other termination on request
<b>GROUNDING</b>	all metal parts are DC grounded
<b>MOUNTING</b>	<i>mast-<math>\emptyset</math></i> <i>clamp (see chapt. 10)</i> 30 - 80 mm                      WG 55 (standard) 50 - 104 mm                    WG 56 (option) clamp for other mast- $\emptyset$ on request
<b>MATERIAL</b>	aluminium, bolts of stainless steel, weather-resistant plastics
<b>WEIGHT</b>	3.6 kg
<b>WIND AREA</b>	0.13 m <sup>2</sup>
<b>WIND LOAD</b>	166 N (150 km/h) 124 N (130 km/h)



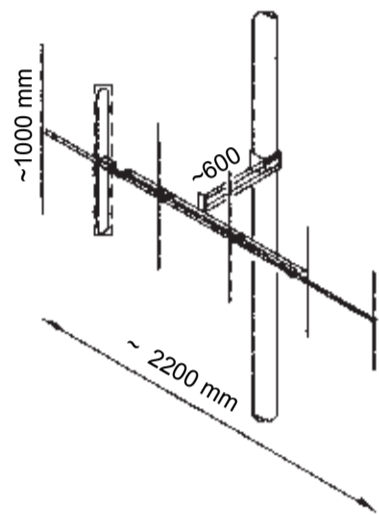
KW 1-08

WIPIC reserves the right to amend specifications in the light of continuing development.

Section 3.2. 11/32

**wipic**

**6-ELEMENT YAGI ANTENNA**  
**WS 306 03 12 8**  
**146 - 174 MHz**



**TYPE NO.** **WS 306 03 12 8: 146 - 174 MHz**  
 further frequencies on request

**DESCRIPTION** heavy duty, with radome  
 The radome protects the antenna dipole from environmental influences, icing, and increases the lightning protection.

**POLARIZATION** vertical

**IMPEDANCE** 50  $\Omega$

**GAIN** 8.5 dB (ref.  $\lambda/2$  dipole)  
 10.5 dB (ref. isotropic radiator)  
 F/B: ~ 18 dB

**VSWR** < 1.3, at the limits of the band <1.4

**POWER** max. 150 watts

**3 dB BEAMWIDTH** horizontal, H plane: 70°  
 vertical, E plane: 48°

**TERMINATION** 2 m cable RG 213/U ending with N male  
 other termination on request

**GROUNDING** all metal parts are DC grounded

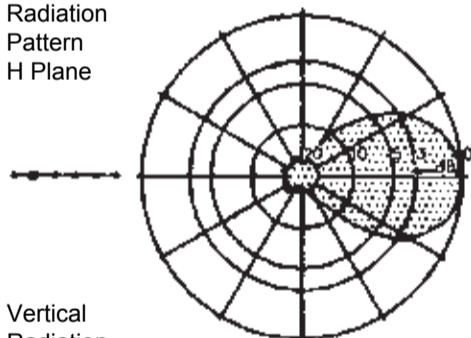
**MOUNTING** *mast- $\emptyset$*  *clamp (see chapt. 10)*  
 30 - 80 mm WG 63 (standard)  
 50 - 104 mm WG 64 (option)  
 clamp for other mast- $\emptyset$  on request

**MATERIAL** aluminium, bolts of stainless steel, weather-resistant plastics, radome of UV-stabilized polyethylene

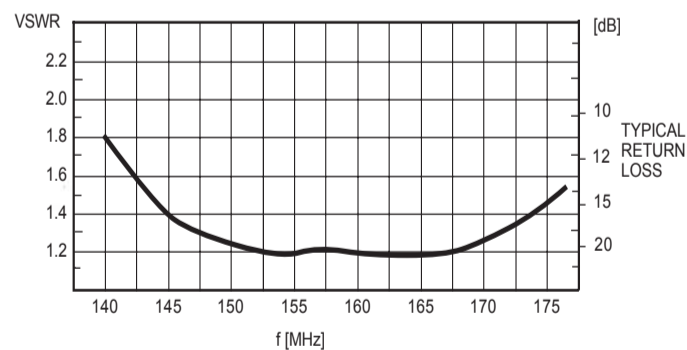
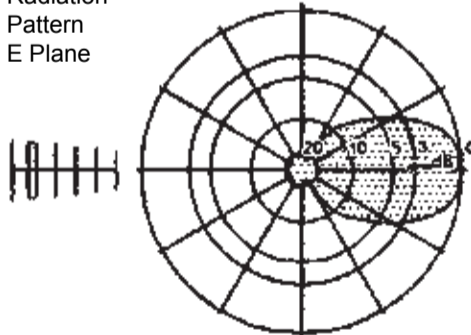
**WEIGHT** 7.4 kg  
**WIND AREA** 0.26 m<sup>2</sup>  
**WIND LOAD** 330 N (150 km/h)  
 250 N (130 km/h)

**max. wind velocity** 200 km/h with icing conditions

Horizontal Radiation Pattern H Plane



Vertical Radiation Pattern E Plane

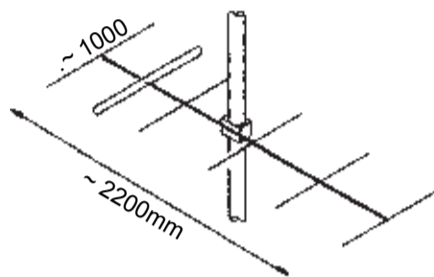


KW 1-08

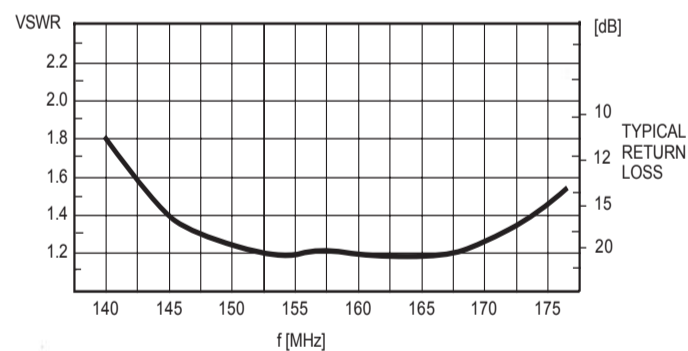
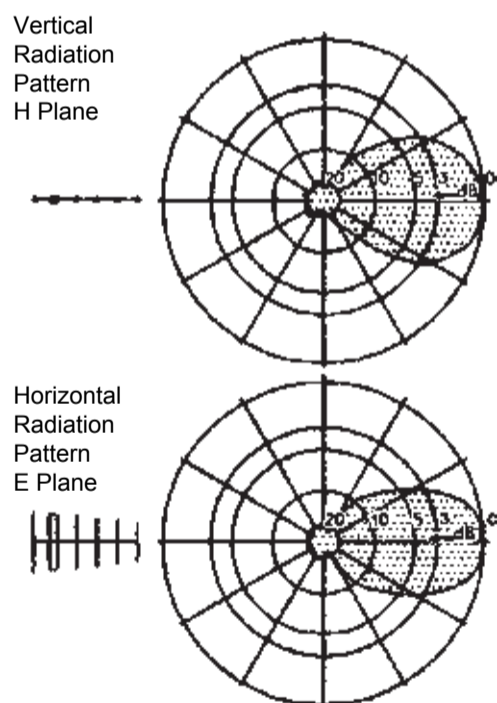
WIPIC reserves the right to amend specifications in the light of continuing development.



**6-ELEMENT YAGI ANTENNA**  
**WS 306 02 23 8**  
**146 - 174 MHz**



<b>TYPE NO.</b>	<b>WS 306 02 23 8: 146 - 174 MHz</b> further frequencies on request
<b>POLARIZATION</b>	horizontal
<b>IMPEDANCE</b>	50 Ω
<b>GAIN</b>	8.5 dB (ref. λ/2 dipole)
<b>VSWR</b>	< 1.3, at the limits of the band <1.4
<b>POWER</b>	max. 150 watts
<b>3 dB BEAMWIDTH</b>	horizontal, E-plane: 48° vertical, H-plane: 70°
<b>TERMINATION</b>	2 m cable RG 213/U ending with N male other termination on request
<b>GROUNDING</b>	all metal parts are DC grounded
<b>MOUNTING</b>	<i>mast-ø</i> <i>clamp</i> 30 - 80 mm                  WG 11 (standard) 50 - 104 mm                WG 12 (option) clamp for other mast-ø on request
<b>MATERIAL</b>	aluminium, bolts of stainless steel, weather-resistant plastics
<b>WEIGHT</b>	2.6 kg
<b>WIND AREA</b>	0.08 m <sup>2</sup>
<b>WIND LOAD</b>	100 N (150 km/h) 75 N (130 km/h)



KW 1-08

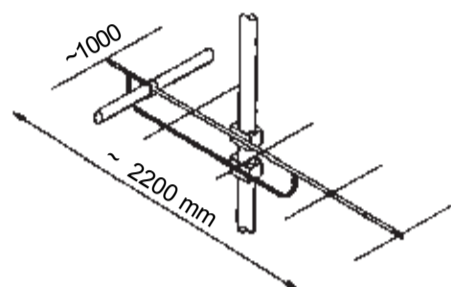
WIPIC reserves the right to amend specifications in the light of continuing development.

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**6-ELEMENT YAGI ANTENNA**

**WS 306 03 23 8**

**146 - 174 MHz**



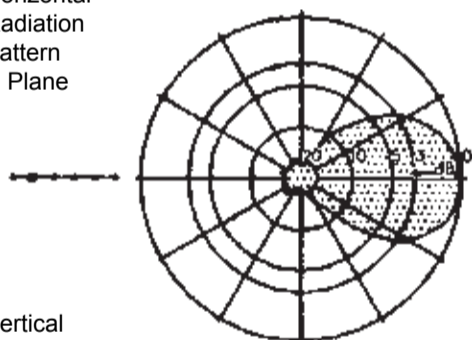
<b>TYPE NO.</b>	<b>WS 306 03 23 8: 146 - 174 MHz</b> further frequencies on request
<b>DESCRIPTION</b>	heavy duty, with radome The radome protects the antenna dipole from environmental influences, icing, and increases the lightning protection.
<b>POLARIZATION</b>	horizontal
<b>IMPEDANCE</b>	50 Ω
<b>GAIN</b>	8.5 dB (ref. λ/2 dipole)
<b>VSWR</b>	< 1.3, at the limits of the band <1.4
<b>POWER</b>	max. 150 watts
<b>3 dB BEAMWIDTH</b>	horizontal, E-plane: 48° vertical, H-plane: 70°
<b>TERMINATION</b>	2 m cable RG 213/U ending with N male other termination on request
<b>GROUNDING</b>	all metal parts are DC grounded
<b>MOUNTING</b>	<i>mast-ø</i> <i>clamp</i> 30 - 80 mm                  2xWG 13 (standard) 50 - 104 mm                2xWG 14 (option) clamp for other mast-ø on request

**MATERIAL** aluminium, bolts of stainless steel, weather-resistant plastics, radome of UV-stabilized polyethylene

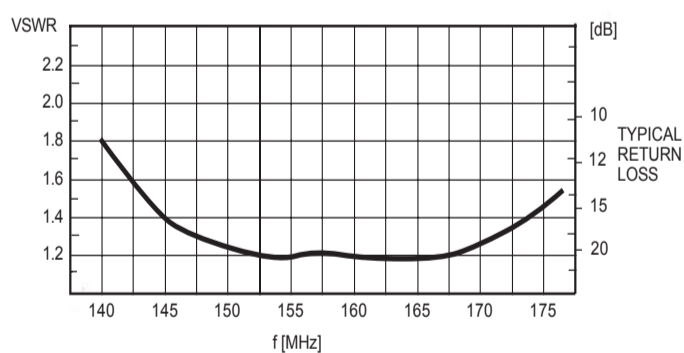
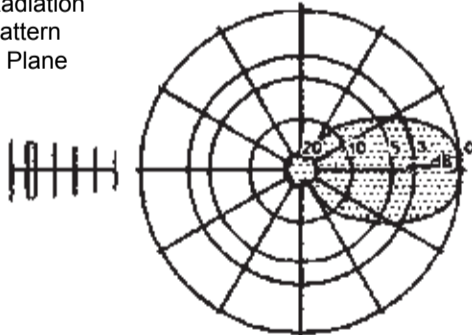
**WEIGHT** 5.2 kg  
**WIND AREA** 0.14 m<sup>2</sup>  
**WIND LOAD** 180 N (150 km/h)  
 135 N (130 km/h)

**max. Wind velocity** 200 km/h with icing conditions

Horizontal Radiation Pattern H Plane



Vertical Radiation Pattern E Plane

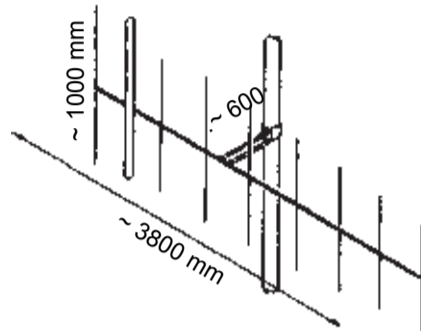


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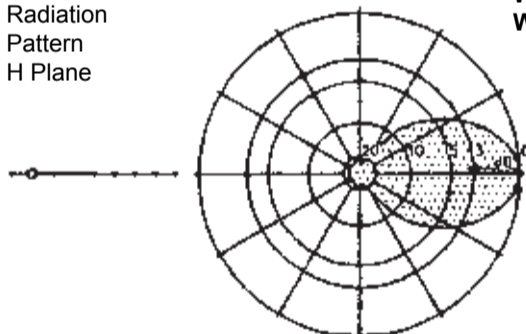


**9-ELEMENT YAGI ANTENNA**  
**WS 309 02 12 8**  
**146 - 174 MHz**

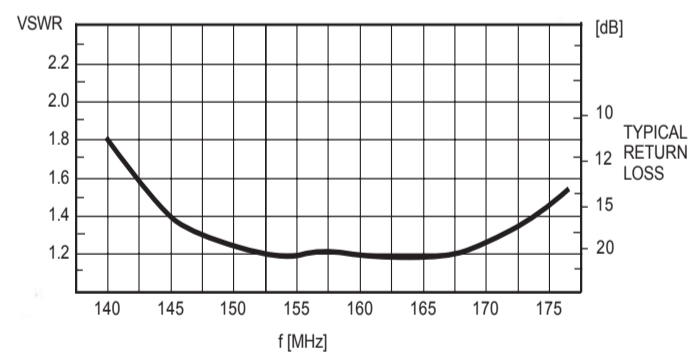
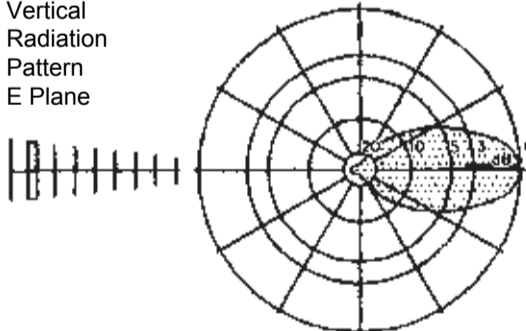


<b>TYPE NO.</b>	<b>WS 309 02 12 8: 146 - 174 MHz</b> further frequencies on request
<b>POLARIZATION</b>	vertical
<b>IMPEDANCE</b>	50 $\Omega$
<b>GAIN</b>	10 dB (ref. $\lambda/2$ dipole) F/B: $\geq 20$ dB
<b>VSWR</b>	< 1.3, at the limits of the band < 1.4
<b>POWER</b>	max. 150 watts
<b>3 dB BEAMWIDTH</b>	horizontal, H-plane: 56° vertical, E-plane: 40°
<b>TERMINATION</b>	2 m cable RG 213/U ending with N male other termination on request
<b>GROUNDING</b>	all metal parts are DC grounded
<b>MOUNTING</b>	<i>mast-<math>\emptyset</math></i> <i>clamp</i> 30 - 80 mm                      WG 55 (standard) 50 - 104 mm                     WG 56 (option) clamp for other mast- $\emptyset$ on request
<b>MATERIAL</b>	aluminium, bolts of stainless steel, weather-resistant plastics
<b>WEIGHT</b>	6.1 kg
<b>WIND AREA</b>	0.29 m <sup>2</sup>
<b>WIND LOAD</b>	370 N (150 km/h) 280 N (130 km/h)

Horizontal  
Radiation  
Pattern  
H Plane



Vertical  
Radiation  
Pattern  
E Plane

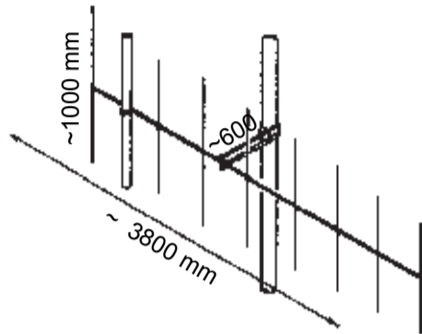


KW 1-08

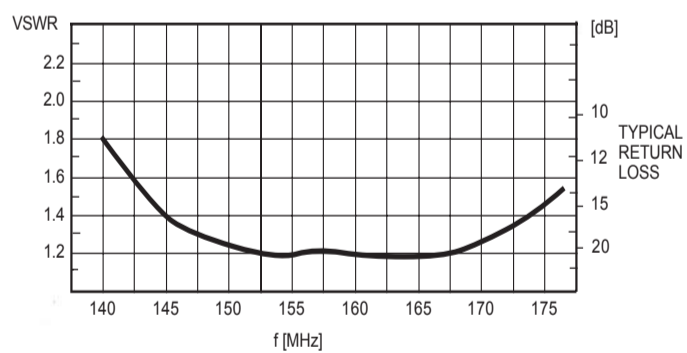
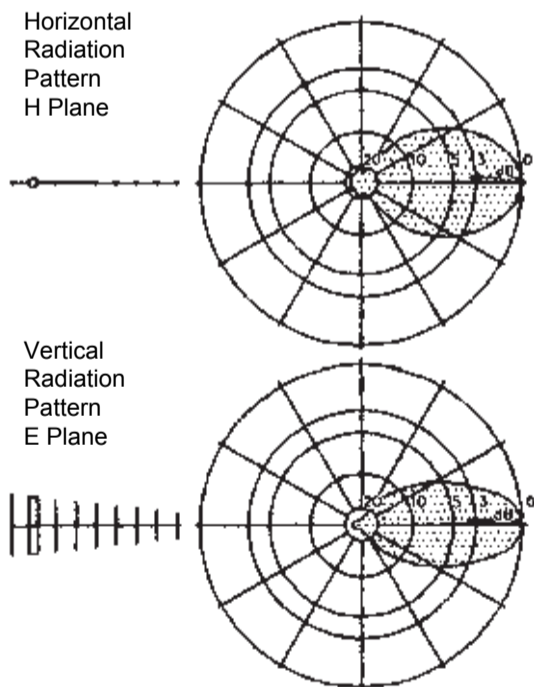
WIPIC reserves the right to amend specifications in the light of continuing development.

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**9-ELEMENT YAGI ANTENNA  
WS 309 03 12 8  
146 - 174 MHz**



<b>TYPE NO.</b>	<b>WS 309 03 12 8: 146 - 174 MHz</b> further frequencies on request
<b>DESCRIPTION</b>	heavy duty, with radome The radome protects the antenna dipole from environmental influences, icing, and increases the lightning protection.
<b>POLARIZATION</b>	vertical
<b>IMPEDANCE</b>	50 Ω
<b>GAIN</b>	10 dB (ref. λ/2 dipole) F/B: ≥ 20 dB
<b>VSWR</b>	< 1.3, at the limits of the band <1.4
<b>POWER</b>	max. 150 watts
<b>3 dB BEAMWIDTH</b>	horizontal, H-plane: 56° vertical, E-plane: 40°
<b>TERMINATION</b>	2 m cable RG 213/U ending with N male other termination on request
<b>GROUNDING</b>	all metal parts are DC grounded
<b>MOUNTING</b>	<i>mast-ø</i> <i>clamp</i> 30 - 80 mm                  WG 63 (standard) 50 - 104 mm                WG 64 (option) clamp for other mast-ø on request
<b>MATERIAL</b>	aluminium, bolts of stainless steel, weather-resistant plastics, radome of UV-stabilized polyethylene
<b>WEIGHT</b>	11.5 kg
<b>WIND AREA</b>	0.41 m <sup>2</sup>
<b>WIND LOAD</b>	525 N (150 km/h) 395 N (130 km/h)



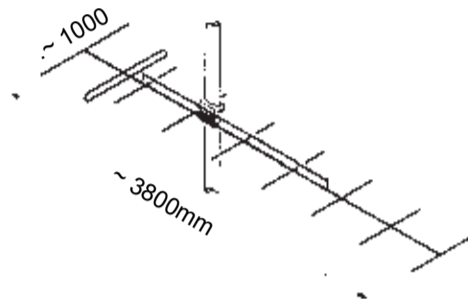
KW 1-08

WIPIC reserves the right to amend specifications in the light of continuing development.



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**9-ELEMENT YAGI ANTENNA  
WS 309 02 23 8  
146 - 174 MHz**



**TYPE NO.** WS 309 02 23 8: 146 - 174 MHz  
further frequencies on request

**POLARIZATION** horizontal

**IMPEDANCE** 50  $\Omega$

**GAIN** 10 dB (ref.  $\lambda/2$  dipole)  
F/B:  $\geq 20$  dB

**VSWR**  $< 1.3$ , at the limits of the band  $< 1.4$

**POWER** max. 150 watts

**3 dB BEAMWIDTH** horizontal, E-plane:  $40^\circ$   
vertical, H-plane:  $56^\circ$

**TERMINATION** 2 m cable RG 213/U ending with N male  
other termination on request

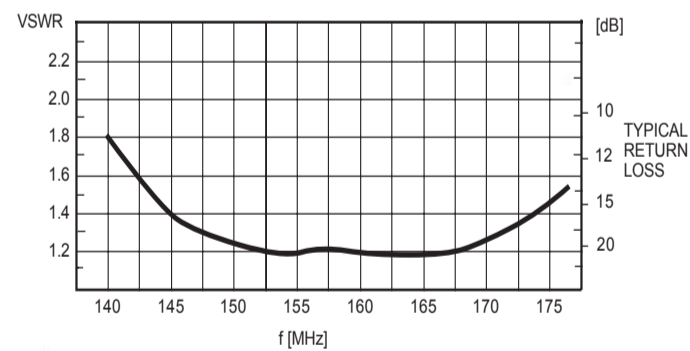
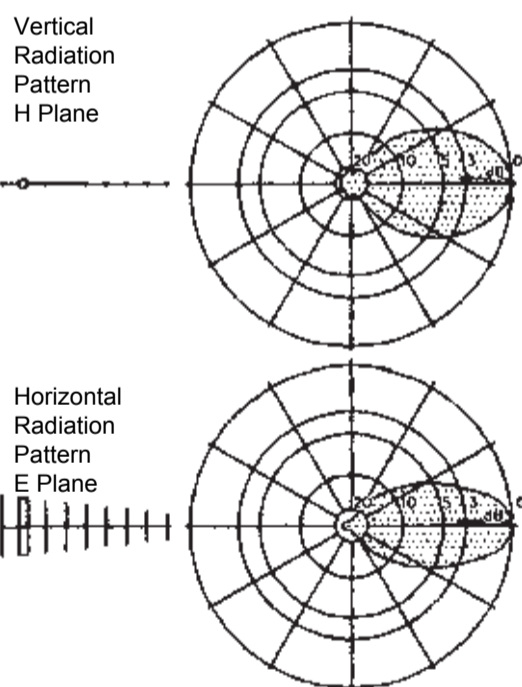
**GROUNDING** all metal parts are DC grounded

**MOUNTING**

<i>mast-<math>\emptyset</math></i>	<i>clamp</i>
30 - 80 mm	2xWG 11 (standard)
50 - 104 mm	2xWG 12 (option)
clamp for other mast- $\emptyset$ on request	

**MATERIAL** aluminium, bolts of stainless steel, weather-resistant plastics

**WEIGHT** 4.4 kg  
**WIND AREA** 0.15 m<sup>2</sup>  
**WIND LOAD** 192 N (150 km/h)  
145 N (130 km/h)

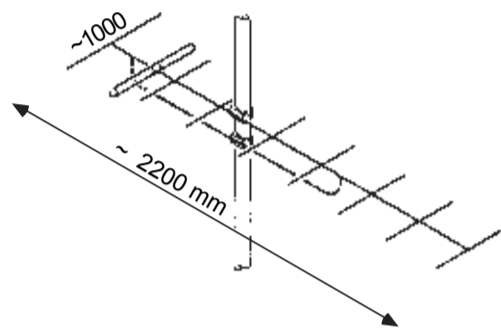


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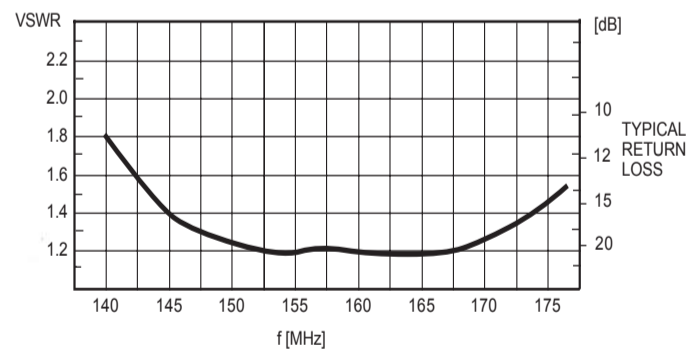
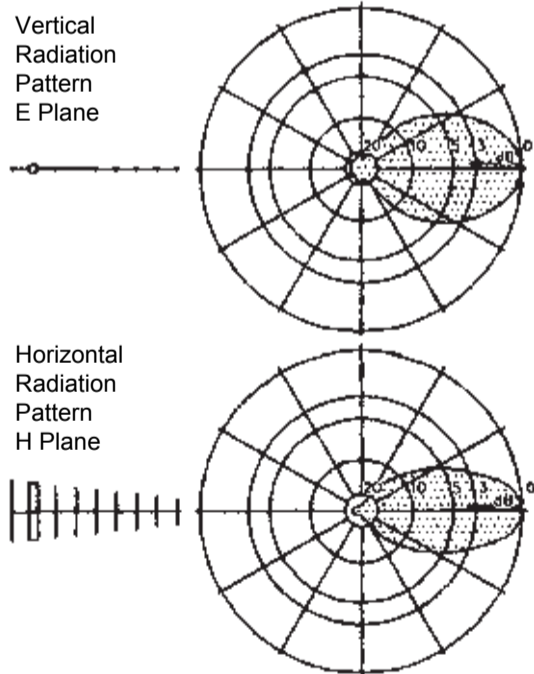
**wipic**

**9-ELEMENT YAGI ANTENNA**  
**WS 309 03 23 8**  
**146 - 174 MHz**



<b>TYPE NO.</b>	<b>WS 309 03 23 8: 146 - 174 MHz</b> further frequencies on request
<b>DESCRIPTION</b>	heavy duty, with radome The radome protects the antenna dipole from environmental influences, icing, and increases the lightning protection.
<b>POLARIZATION</b>	horizontal
<b>IMPEDANCE</b>	50 Ω
<b>GAIN</b>	10 dB (ref. λ/2 dipole) F/B: ≥ 20 dB
<b>VSWR</b>	< 1.3, at the limits of the band <1.4
<b>POWER</b>	max. 150 watts
<b>3 dB BEAMWIDTH</b>	horizontal, E-plane: 40° vertical, H-plane: 56°
<b>TERMINATION</b>	2 m cable RG 213/U ending with N male other termination on request
<b>GROUNDING</b>	all metal parts are DC grounded
<b>MOUNTING</b>	<i>mast-ø</i> <i>clamp</i> 30 - 80 mm                  2xWG 13 (standard) 50 - 104 mm                2xWG 14 (option) clamp for other mast-ø on request
<b>MATERIAL</b>	aluminium, bolts of stainless steel, weather-resistant plastics, radome of UV-stabilized polyethylene

<b>WEIGHT</b>	7.5 kg
<b>WIND AREA</b>	0.24 m <sup>2</sup>
<b>WIND LOAD</b>	310 N (150 km/h) 230 N (130 km/h)

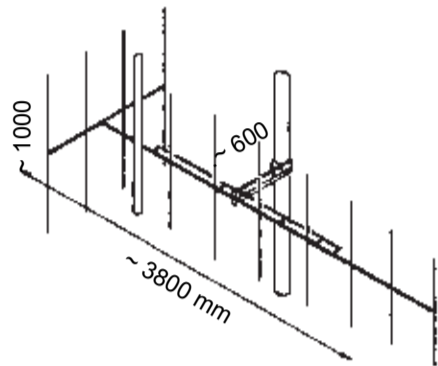


KW 1-08

WIPIC reserves the right to amend specifications in the light of continuing development.

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**12-ELEMENT YAGI ANTENNA**  
**WS 312 02 12 8**  
**146 - 174 MHz**

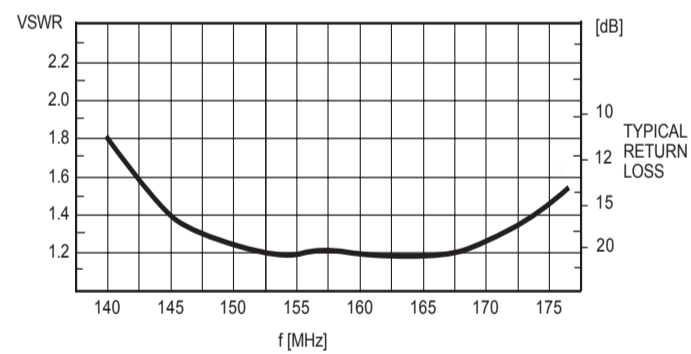
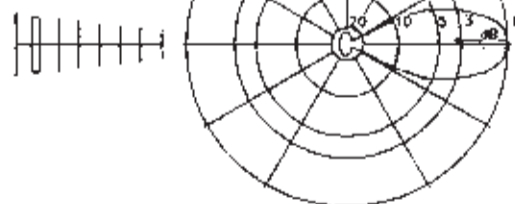


<b>TYPE NO.</b>	<b>WS 312 02 12 8: 146 - 174 MHz</b> further frequencies on request
<b>POLARIZATION</b>	vertical
<b>IMPEDANCE</b>	50 $\Omega$
<b>GAIN</b>	11 dB (ref. $\lambda/2$ dipole) F/B: $\geq 25$ dB
<b>VSWR</b>	$< 1.3$ , at the limits of the band $< 1.4$
<b>POWER</b>	max. 150 watts
<b>3 dB BEAMWIDTH</b>	horizontal, H-plane: $48^\circ$ vertical, E-plane: $36^\circ$
<b>TERMINATION</b>	2 m cable RG 213/U ending with N male other termination on request
<b>GROUNDING</b>	all metal parts are DC grounded
<b>MOUNTING</b>	<i>mast-<math>\emptyset</math></i> <i>clamp</i> 30 - 80 mm                      WG 63 (standard) 50 - 104 mm                     WG 64 (option) clamp for other mast- $\emptyset$ on request
<b>MATERIAL</b>	aluminium, bolts of stainless steel, weather-resistant plastics
<b>WEIGHT</b>	6.8 kg
<b>WIND AREA</b>	0.33 m <sup>2</sup>
<b>WIND LOAD</b>	420 N (150 km/h) 315 N (130 km/h)

Horizontal  
Radiation  
Pattern  
H Plane



Vertical  
Radiation  
Pattern  
E Plane

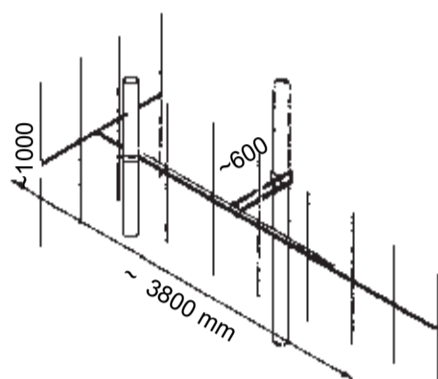


KW 1-08

WIPIC reserves the right to amend specifications in the light of continuing development.



**12-ELEMENT YAGI ANTENNA**  
**WS 312 03 12 8**  
**146 - 174 MHz**



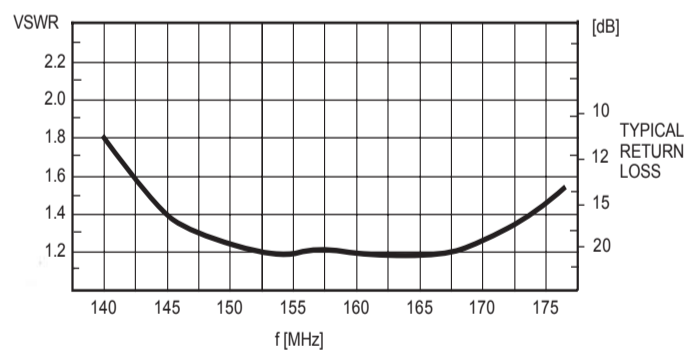
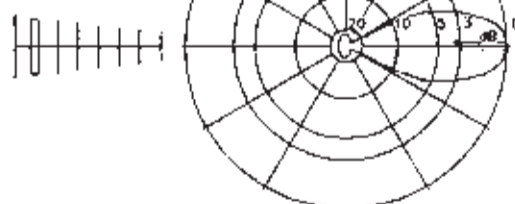
<b>TYPE NO.</b>	<b>WS 312 03 12 8: 146 - 174 MHz</b> further frequencies on request
<b>DESCRIPTION</b>	heavy duty, with radome The radome protects the antenna dipole from environmental influences, icing, and increases the lightning protection.
<b>POLARIZATION</b>	vertical
<b>IMPEDANCE</b>	50 Ω
<b>GAIN</b>	11 dB (ref. λ/2 dipole) F/B: ≥ 25 dB
<b>VSWR</b>	< 1.3, at the limits of the band <1.4
<b>POWER</b>	max. 150 watts
<b>3 dB BEAMWIDTH</b>	horizontal, H-plane: 48° vertical, E-plane: 36°
<b>TERMINATION</b>	2 m cable RG 213/U ending with N male other termination on request
<b>GROUNDING</b>	all metal parts are DC grounded
<b>MOUNTING</b>	<i>mast-ø</i> <i>clamp</i> 30 - 80 mm                  WG 63 (standard) 50 - 104 mm                WG 64 (option) clamp for other mast-ø on request
<b>MATERIAL</b>	aluminium, bolts of stainless steel, weather-resistant plastics, radome of UV-stabilized polyethylene

<b>WEIGHT</b>	12.5 kg
<b>WIND AREA</b>	0.44 m <sup>2</sup>
<b>WIND LOAD</b>	560 N (150 km/h) 420 N (130 km/h)

Horizontal Radiation Pattern H Plane



Vertical Radiation Pattern E Plane

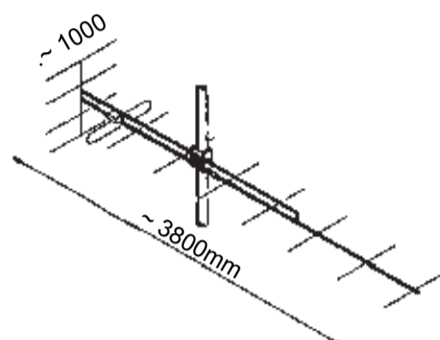


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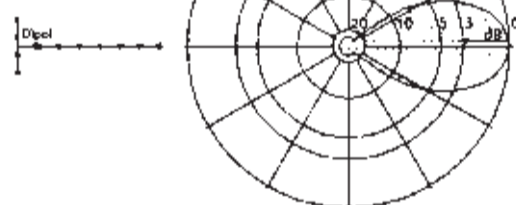
**wipic**

**12-ELEMENT YAGI ANTENNA  
WS 312 02 23 8  
146 - 174 MHz**

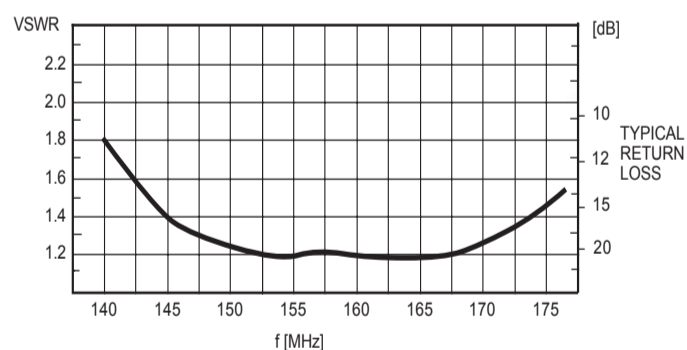
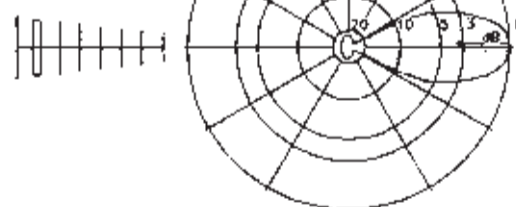


<b>TYPE NO.</b>	<b>WS 312 02 23 8: 146 - 174 MHz</b> further frequencies on request	
<b>POLARIZATION</b>	horizontal	
<b>IMPEDANCE</b>	50 Ω	
<b>GAIN</b>	11 dB (ref. λ/2 dipole) F/B: ≥ 25 dB	
<b>VSWR</b>	< 1.3, at the limits of the band <1.4	
<b>POWER</b>	max. 150 watts	
<b>3 dB BEAMWIDTH</b>	horizontal, E-plane:	36°
	vertical, H-plane:	48°
<b>TERMINATION</b>	2 m cable RG 213/U ending with N male other termination on request	
<b>GROUNDING</b>	all metal parts are DC grounded	
<b>MOUNTING</b>	<i>mast-ø</i>	<i>clamp</i>
	30 - 80 mm	2xWG 11 (standard)
	50 - 104 mm	2xWG 12 (option)
	clamp for other mast-ø on request	
<b>MATERIAL</b>	aluminium, bolts of stainless steel, weather-resistant plastics	
<b>WEIGHT</b>	5.2 kg	
<b>WIND AREA</b>	0.18 m <sup>2</sup>	
<b>WIND LOAD</b>	230 N (150 km/h) 173 N (130 km/h)	

Vertical  
Radiation  
Pattern  
H Plane



Horizontal  
Radiation  
Pattern  
E Plane

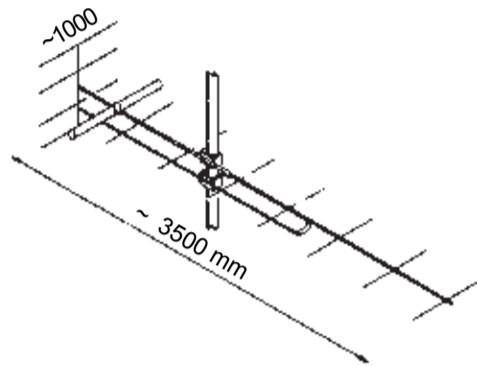


KW 1-08

WIPIC reserves the right to amend specifications in the light of continuing development.



**12-ELEMENT YAGI ANTENNA**  
**WS 312 03 23 8**  
**146 - 174 MHz**



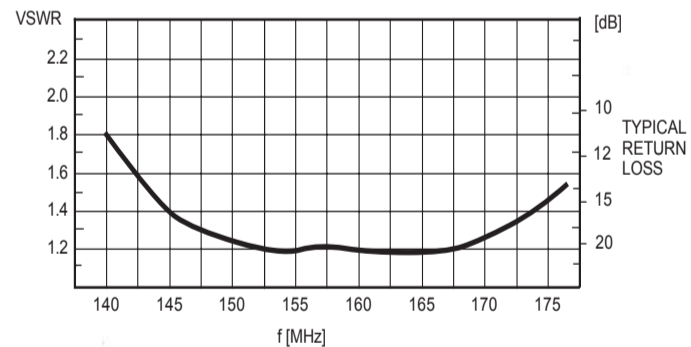
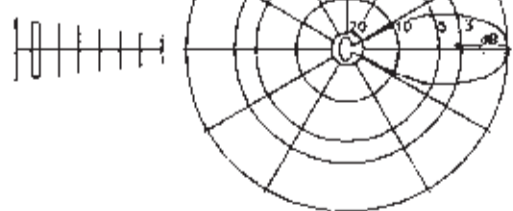
<b>TYPE NO.</b>	<b>WS 312 03 23 8: 146 - 174 MHz</b> further frequencies on request	
<b>DESCRIPTION</b>	heavy duty, with radome The radome protects the antenna dipole from environmental influences, icing, and increases the lightning protection.	
<b>POLARIZATION</b>	horizontal	
<b>IMPEDANCE</b>	50 Ω	
<b>GAIN</b>	11 dB (ref. λ/2 dipole) F/B: ≥ 25 dB	
<b>VSWR</b>	< 1.3, at the limits of the band <1.4	
<b>POWER</b>	max. 150 watts	
<b>3 dB BEAMWIDTH</b>	horizontal, E-plane:	36°
	vertical, H-plane:	48°
<b>TERMINATION</b>	2 m cable RG 213/U ending with N male other termination on request	
<b>GROUNDING</b>	all metal parts are DC grounded	
<b>MOUNTING</b>	<i>mast-ø</i>	<i>clamp</i>
	30 - 80 mm	2xWG 13 (standard)
	50 - 104 mm	2xWG 14 (option)
	clamp for other mast-ø on request	
<b>MATERIAL</b>	aluminium, bolts of stainless steel, weather-resistant plastics, radome of UV-stabilized polyethylene	

<b>WEIGHT</b>	8.8 kg
<b>WIND AREA</b>	0.28 m <sup>2</sup>
<b>WIND LOAD</b>	355 N (150 km/h)
	270 N (130 km/h)

Vertical Radiation Pattern E Plane



Horizontal Radiation Pattern H Plane

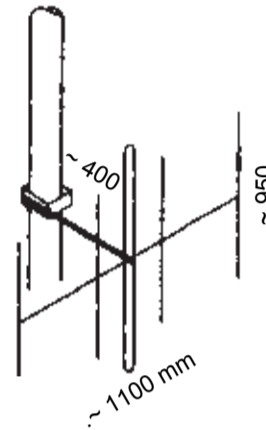


KW 1-08

WIPIC reserves the right to amend specifications in the light of continuing development.

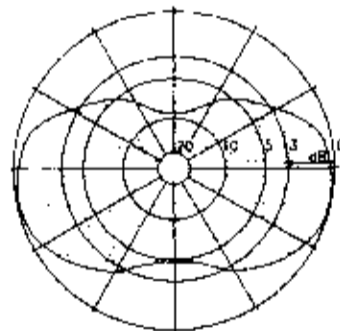
**wipic**

**BIDIRECTIONAL ANTENNA**  
**WS 342 02 12 9**  
**146 - 174 MHz**

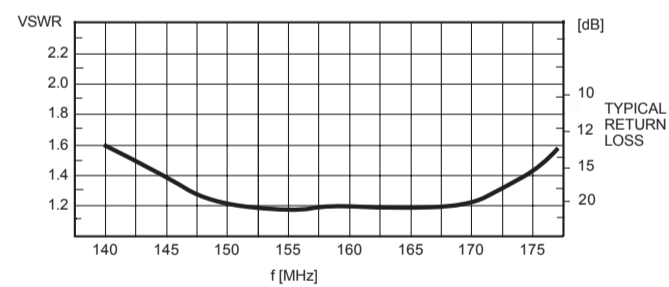
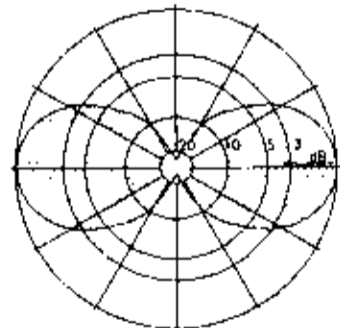
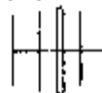


<b>TYPE NO.</b>	<b>WS 342 02 12 9: 146 - 174 MHz</b> further frequencies or wall mounting on request	
<b>POLARIZATION</b>	vertical	
<b>IMPEDANCE</b>	50 Ω	
<b>GAIN</b>	3 dB (ref. λ/2 dipole)	
<b>VSWR</b>	< 1.3, at the limits of the band <1.4	
<b>POWER</b>	max. 150 watts	
<b>3 dB BEAMWIDTH</b>	horizontal, H-plane:	2x 100°
	vertical, E-plane:	2x 60°
<b>TERMINATION</b>	2 m cable RG 213/U ending with N male other termination on request	
<b>GROUNDING</b>	all metal parts are DC grounded	
<b>MOUNTING</b>	<i>mast-ø</i>	<i>clamp</i>
	30 - 80 mm	WG 15 (standard)
	50 - 104 mm	WG 16 (option)
	clamp for other mast-ø on request	
<b>MATERIAL</b>	aluminium, bolts of stainless steel, weather-resistant plastics	
<b>WEIGHT</b>	2.8 kg	
<b>WIND AREA</b>	0.09 m <sup>2</sup>	
<b>WIND LOAD</b>	115 N (150 km/h)	
	87 N (130 km/h)	

Horizontal  
Radiation  
Pattern  
H Plane



Vertical  
Radiation  
Pattern  
E Plane



KW 1-08

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**wipic**

**BIDIRECTIONAL ANTENNA  
WS 342 03 12 9  
146 - 174 MHz**

**TYPE NO.** **WS 342 03 12 9: 146 - 174 MHz**  
further frequencies or wall mounting on request

**DESCRIPTION** heavy duty, with radome  
The radome protects the antenna dipole from environmental influences, icing, and increases the lightning protection. Wall mounting on request.

**POLARIZATION** vertical

**IMPEDANCE** 50 Ω

**GAIN** 3 dB (ref. λ/2 dipole)

**VSWR** < 1.3, at the limits of the band <1.4

**POWER** max. 150 watts

**3 dB BEAMWIDTH** horizontal, H-plane: 2x 100°  
vertical, E-plane: 2x 60°

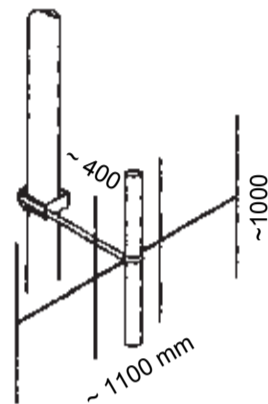
**TERMINATION** 2 m cable RG 213/U ending with N male  
other termination on request

**GROUNDING** all metal parts are DC grounded

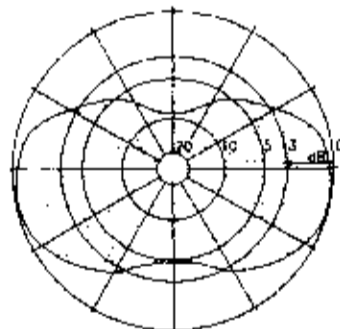
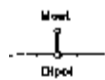
**MOUNTING** *mast-ø*                      *clamp*  
30 - 80 mm                      WG 17 (standard)  
50 - 104 mm                     WG 18 (option)  
clamp for other mast-ø on request

**MATERIAL** aluminium, bolts of stainless steel, weather-resistant plastics, radome of UV-stabilized polyethylene

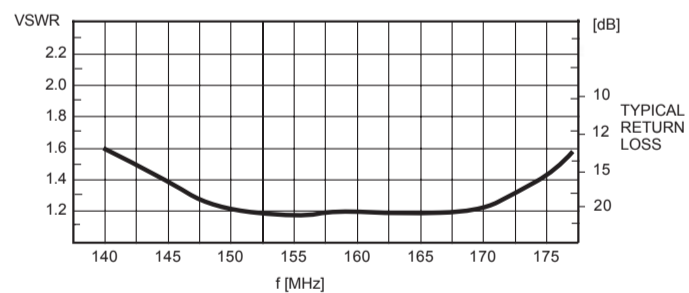
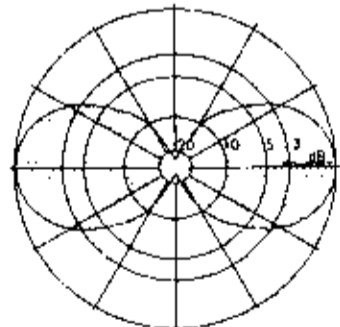
**WEIGHT** 5.4 kg  
**WIND AREA** 0.15 m<sup>2</sup>  
**WIND LOAD** 190 N (150 km/h)  
145 N (130 km/h)



Horizontal Radiation Pattern H Plane



Vertical Radiation Pattern E Plane



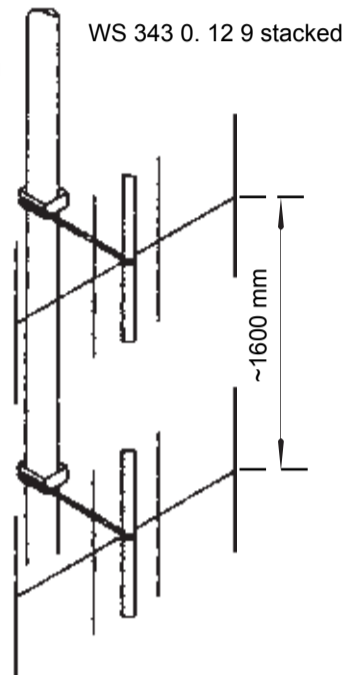
KW 1-08

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**wipic**

**BIDIRECTIONAL ANTENNAS, DUO, QUADRO**  
**WS 343 0. 12 9 / WS 345 0. 12 9**  
**146 ... 174 MHz**



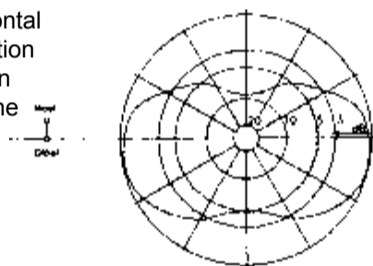
**TYPES NO.** without radome  
**WS 343 02 12 9**  
 heavy duty, with radome  
**WS 343 03 12 9**  
 The antennas are tuned to the requested frequency

**GAIN** 5.5 dB

**3 dB BEAMWIDTH** horizontal (H-plane): 2x 103°  
 vertical (E-plane): 2x 30°

Further technical information see **WS 342 02..** or **WS 342 03 ..**

Horizontal  
 Radiation  
 Pattern  
 H Plane



**TYPE NO.** **WS 345 02 12 9 146 ... 174 MHz:** without radome  
**WS 345 03 12 9 146 ... 174 MHz:** with radome  
 The antennas are tuned to the requested frequency.

**VSWR** <1.5

**GAIN** 5.5 dB (ref.  $\lambda/2$  dipole)

**3 dB BEAMWIDTH** horizontal (H plane): 2x 44°  
 vertical (E plane): 2x 60°

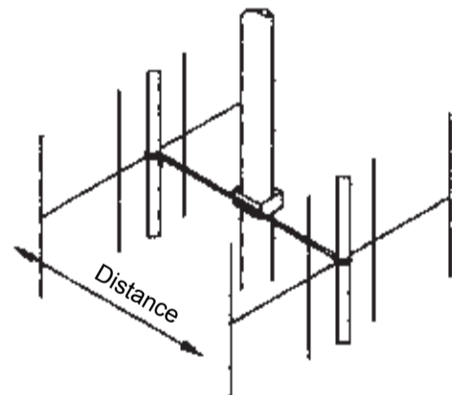
**POWER** 500 watts

**TERMINATION** in the junction box WAK 1 ending with N male  
 other termination on request

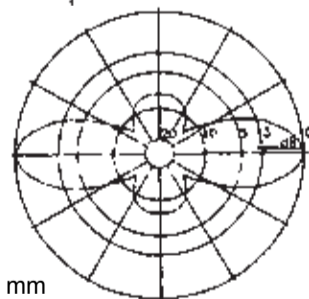
<b>WEIGHT</b>	34 5 02.	34 5 03 ..
<b>WIND AREA</b>	6 kg	12 kg
<b>WIND LOAD</b>	0.2 m <sup>2</sup>	0.32 m <sup>2</sup>
	255 N	410 N (150 km/h)
	190 N	310 N (130 km/h)

Further technical information see **WS 342 0.**

WS 345 0. 12 9 DUO

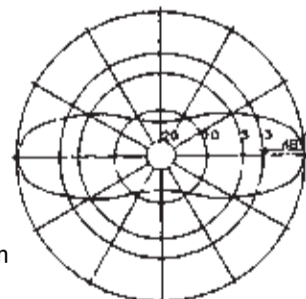


Horizontal  
 Radiation  
 Pattern  
 H Plane



Distance 1400 mm

Horizontal  
 Radiation  
 Pattern  
 H Plane



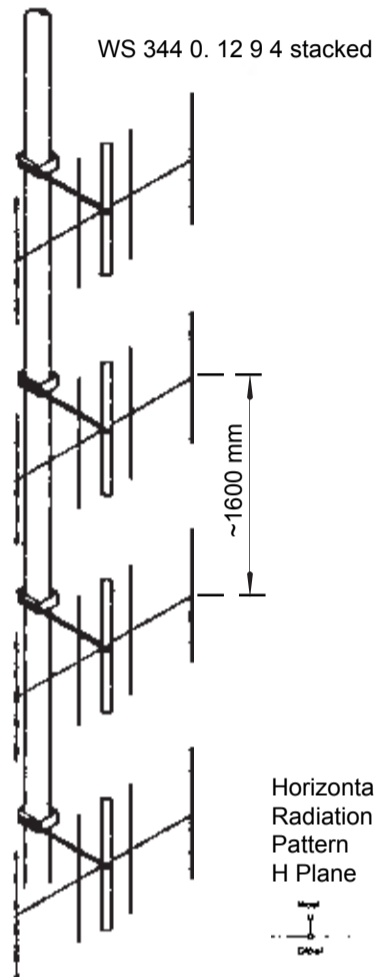
Distance 1400 mm

KW 1-08

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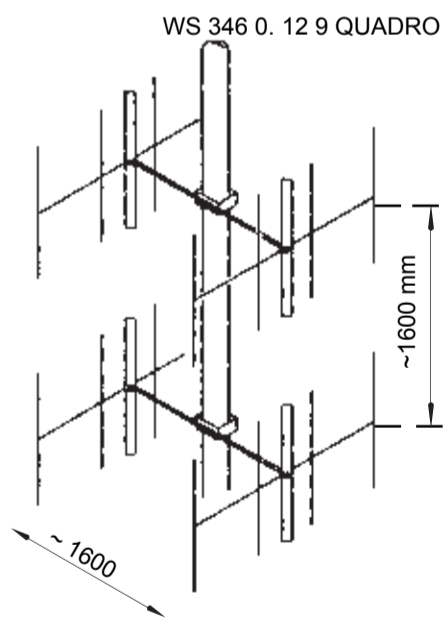
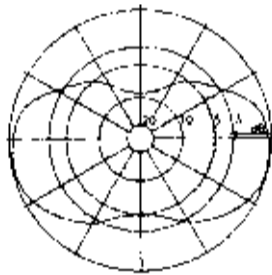
**wipic**

**BIDIRECTIONAL ANTENNAS**  
**WS 344/346 0. 12 9**  
**146 - 174 MHz**



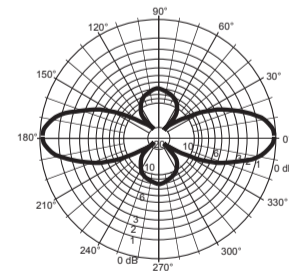
<b>TYPE NO.</b>	without radome: <b>WS 344 02 12 9: 146 - 174 MHz</b>
	with radome: <b>WS 344 03 12 9: 146 - 174 MHz</b>
<b>GAIN</b>	8 dB (ref. to $\lambda/2$ dipole)
<b>3 dB BEAMWIDTH</b>	horizontal (H plane): 2x 103° vertical (E plane): 2x 20°
<b>POWER</b>	300 watts
<b>TERMINATION</b>	in the junction box WAK 1 ending with N male other termination on request
<b>WEIGHT</b>	343 02.. 12 kg      343 03 .. 22 kg
<b>WIND AREA</b>	0.4 m <sup>2</sup> 0.65 m <sup>2</sup>
<b>WIND LOAD</b>	510 N      510 N (150 km/h) 380 N      380 N (130 km/h)

Horizontal Radiation Pattern H Plane



<b>TYPES NO.</b>	The antennas are tuned to the requested frequency in the band 146 - 174 MHz. <b>WS 346 02 12 9 QUADRO:</b> without radome <b>WS 346 03 12 9 QUADRO:</b> heavy duty, with radome
<b>GAIN</b>	8 dB (ref. to $\lambda$ dipole)
<b>3 dB BEAMWIDTH</b>	horizontal (H-plane): 2x 40° vertical (E-plane): 2x 30°
	<b>Further technical information see WS 342 02.. or WS 342 03 ..</b>

Horizontal Radiation Pattern H Plane

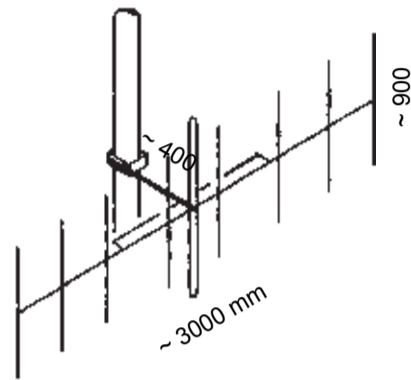


KW 1-08

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**wipic**

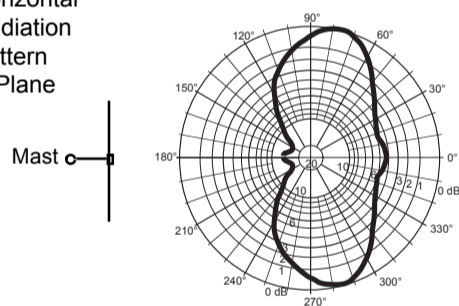
**BIDIRECTIONAL ANTENNA  
WS 348 02 12 9  
146 - 174 MHz**



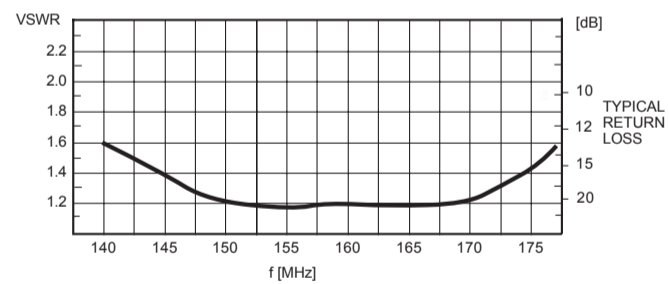
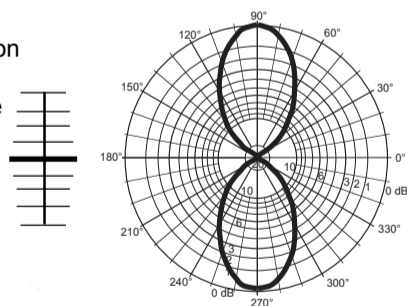
2727

<b>TYPE NO.</b>	<b>WS 348 02 12 9: 146 - 174 MHz</b> further frequencies on request
<b>POLARIZATION</b>	vertical
<b>IMPEDANCE</b>	50 Ω
<b>GAIN</b>	4.5 dB (ref. λ/2 dipole)
<b>VSWR</b>	< 1.3, at the limits of the band <1.4
<b>POWER</b>	max. 150 watts
<b>3 dB BEAMWIDTH</b>	horizontal, H-plane: 2x 72° vertical, E-plane: 2x 49°
<b>TERMINATION</b>	2 m cable RG 213/U ending with N male other termination on request
<b>GROUNDING</b>	all metal parts are DC grounded
<b>MOUNTING</b>	<i>mast-ø</i> <i>clamp</i> 30 - 80 mm                  WG 15 (standard) 50 - 104 mm                WG 16 (option) clamp for other mast-ø on request
<b>MATERIAL</b>	aluminium, bolts of stainless steel, weather-resistant plastics
<b>WEIGHT</b>	3.8 kg
<b>WIND AREA</b>	0.18 m <sup>2</sup>
<b>WIND LOAD</b>	229 N (150 km/h) 172 N (130 km/h)

Horizontal  
Radiation  
Pattern  
H Plane



Vertical  
Radiation  
Pattern  
E Plane

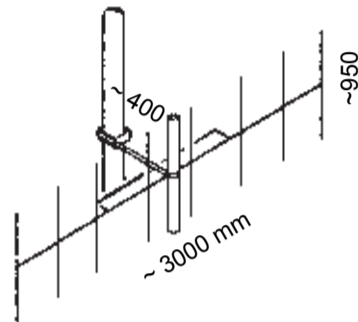


KW 1-08

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**BIDIRECTIONAL ANTENNA**  
**WS 348 03 12 9**  
**146 - 174 MHz**

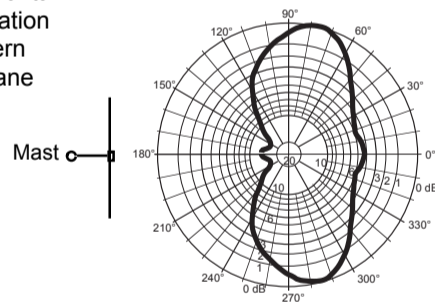


<b>TYPE NO.</b>	<b>WS 348 03 12 9: 146 - 174 MHz</b> further frequencies on request
<b>DESCRIPTION</b>	heavy duty, with radome The radome protects the antenna dipole from environmental influences, icing, and increases the lightning protection.
<b>POLARIZATION</b>	vertical
<b>IMPEDANCE</b>	50 Ω
<b>GAIN</b>	4.5 dB (ref. λ/2 dipole)
<b>VSWR</b>	< 1.3, at the limits of the band <1.4
<b>POWER</b>	max. 150 watts
<b>3 dB BEAMWIDTH</b>	horizontal, H-plane: 2x 72° vertical, E-plane: 2x 49°
<b>TERMINATION</b>	2 m cable RG 213/U ending with N male other termination on request
<b>GROUNDING</b>	all metal parts are DC grounded
<b>MOUNTING</b>	<i>mast-ø</i> <i>clamp</i> 30 - 80 mm                  WG 17 (standard) 50 - 104 mm                WG 18 (option) clamp for other mast-ø on request

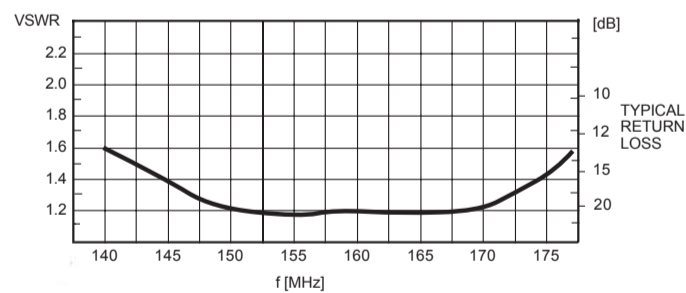
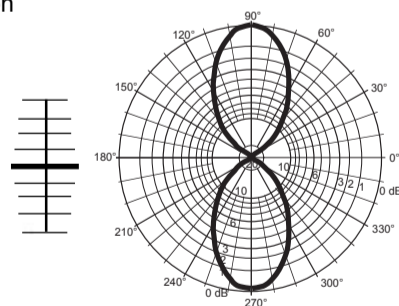
**MATERIAL**                      aluminium, bolts of stainless steel, weather-resistant plastics, radome of UV-stabilized polyethylene

<b>WEIGHT</b>	7.5 kg
<b>WIND AREA</b>	0.3 m <sup>2</sup>
<b>WIND LOAD</b>	383 N (150 km/h) 287 N (130 km/h)

Horizontal  
Radiation  
Pattern  
H Plane



Vertical  
Radiation  
Pattern  
E Plane

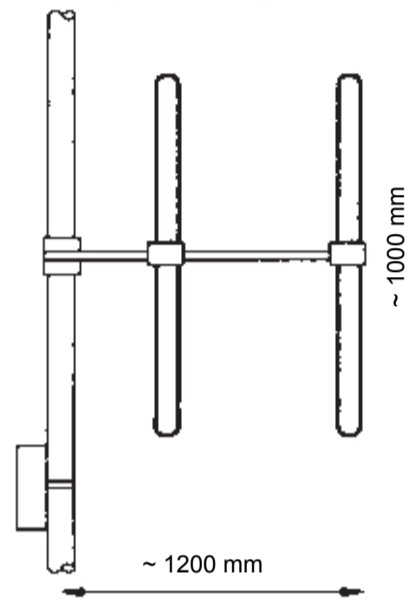


KW 1-08

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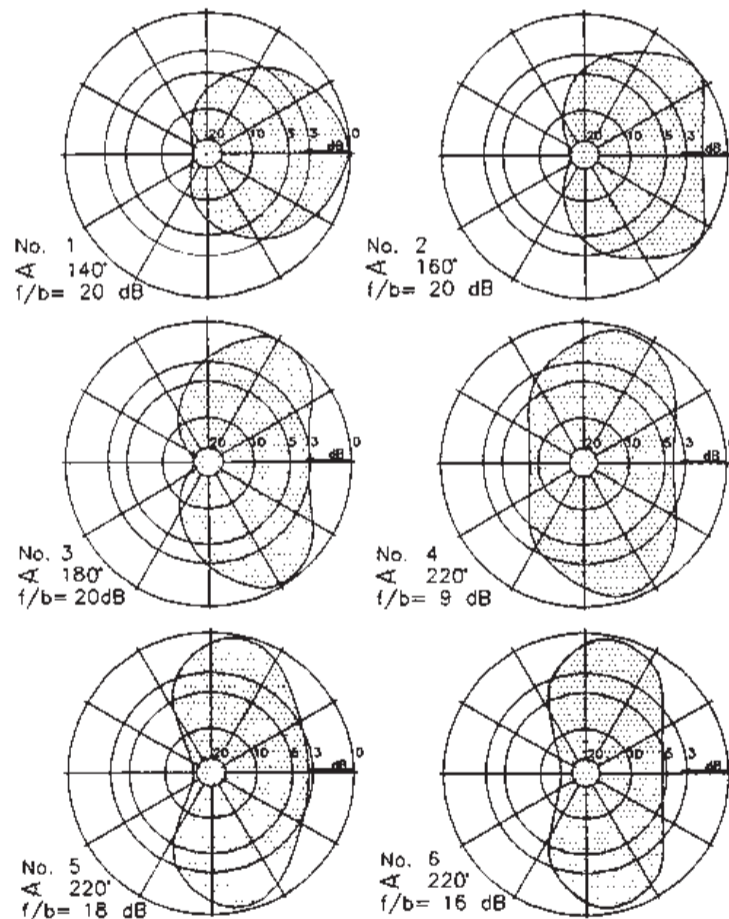


**DIRECTIONAL ANTENNA TYPE KLEEWI**  
**WS 351 02 11**  
**146 ... 174 MHz**



<b>TYPE NO.</b>	<b>WS 351 02 11 (and the desired frequency)</b> The antenna is tuned to the requested frequency in the band 146 - 174 MHz further frequencies on request
<b>POLARIZATION</b>	vertical
<b>IMPEDANCE</b>	50 Ω
<b>GAIN</b>	3 dB (ref. λ/2 dipole)
<b>VSWR</b>	< 1.2, on tuned frequency
<b>POWER</b>	max. 300 watts
<b>BEAMWIDTH</b>	horizontal (H-plane): see radiation patterns vertical (E-plane): ~ 70° in main beam directions
<b>TERMINATION</b>	in the junction box WAK 1 ending mit N male, other termination on request
<b>GROUNDING</b>	all metal parts are DC grounded

TYPICAL RADIATION PATTERNS  
H PLANE



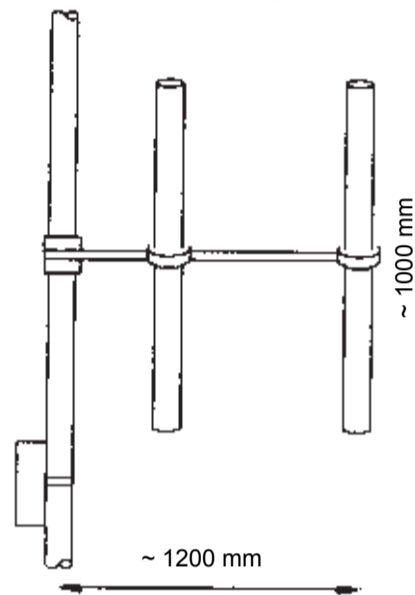
<b>MOUNTING</b>	<i>mast-ø</i> <i>clamp</i> 30 - 80 mm    WG 15 (standard) 50 - 104 mm   WG 16 (option) clamp for other mast-ø on request
<b>MATERIAL</b>	aluminium, bolts of stainless steel, weather-resistant plastics
<b>WEIGHT</b>	7 kg
<b>WIND AREA</b>	0.14 m <sup>2</sup>
<b>WIND LOAD</b>	180 N (150 km/h) 135 N (130 km/h)

KW 1-08

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**wipic**

**DIRECTIONAL ANTENNA TYPE KLEEWI  
WS 351 03 11  
146 ... 174 MHz**



<b>TYPE NO.</b>	<b>WS 351 03 11 (and the desired frequency)</b> The antenna is tuned to the requested frequency in the band 146 - 174 MHz further frequencies on request
<b>DESCRIPTION</b>	heavy duty, with radome The radome protects the antenna dipole from environmental influences, icing, and increases the lightning protection.
<b>POLARIZATION</b>	vertical
<b>IMPEDANCE</b>	50 Ω
<b>GAIN</b>	3 dB (ref. λ/2 dipole)
<b>VSWR</b>	< 1.2, on tuned frequency
<b>POWER</b>	max. 300 watts
<b>3 dB BEAMWIDTH</b>	horizontal (H-plane): see radiation patterns vertical (E-plane): ~ 70° in main beam directions

**TERMINATION** in the junction box WAK 1 ending mit N male, other termination on request

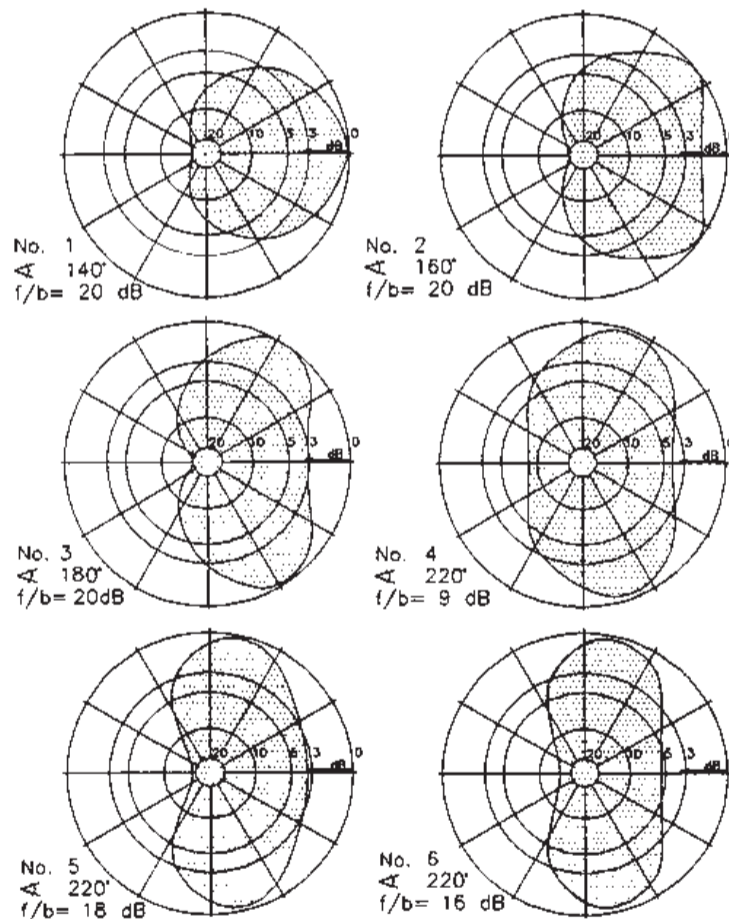
**GROUNDING** all metal parts are DC grounded

**MOUNTING** mast-ø clamp  
30 - 80 mm WG 17 (standard)  
50 - 104 mm WG 18 (option)  
clamp for other mast-ø on request

**MATERIAL** aluminium, bolts of stainless steel, radome of UV-stabilized polyethylene

**WEIGHT** 10 kg  
**WIND AREA** 0.26 m<sup>2</sup>  
**WIND LOAD** 330 N (150 km/h)  
250 N (130 km/h)

TYPICAL RADIATION PATTERNS  
H PLANE

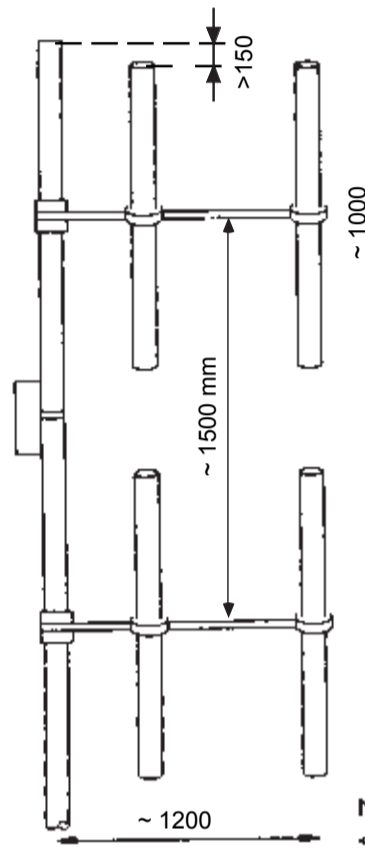


KW 1-08

WIPIK reserves the right to amend specifications in the light of continuing development.

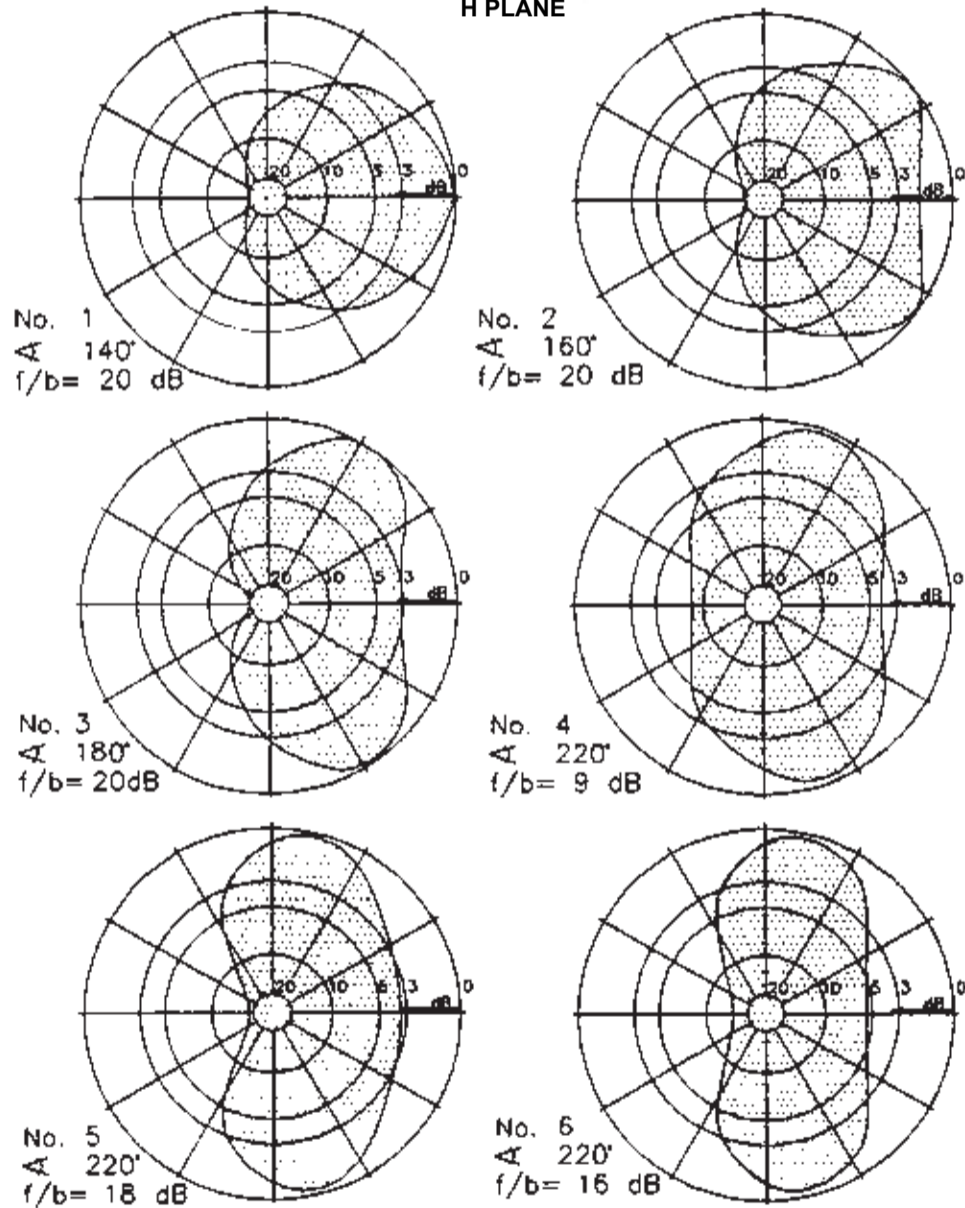


**STACKED DIRECTIONAL ANTENNA TYPE KLEEWI  
WS 352 02/3 11  
146 ... 174 MHz**



<b>TYPE NO.</b>	<b>WS 352 02 11</b> : without radome <b>WS 352 03 11</b> : heavy duty, with radome The radome protects the antenna dipole from environmental influences, icing, and increases the lightning protection.
<b>GAIN</b>	6 dB (ref. $\lambda/2$ dipole)
<b>POWER</b>	max. 400 watts
<b>3 dB BEAMWIDTH</b>	horizontal, H-plane: see radiation patterns vertical, E-plane: $\sim 32^\circ$
Further technical information see WS 351 0. 11	

**TYPICAL RADIATION PATTERNS  
H PLANE**



KW 1-08

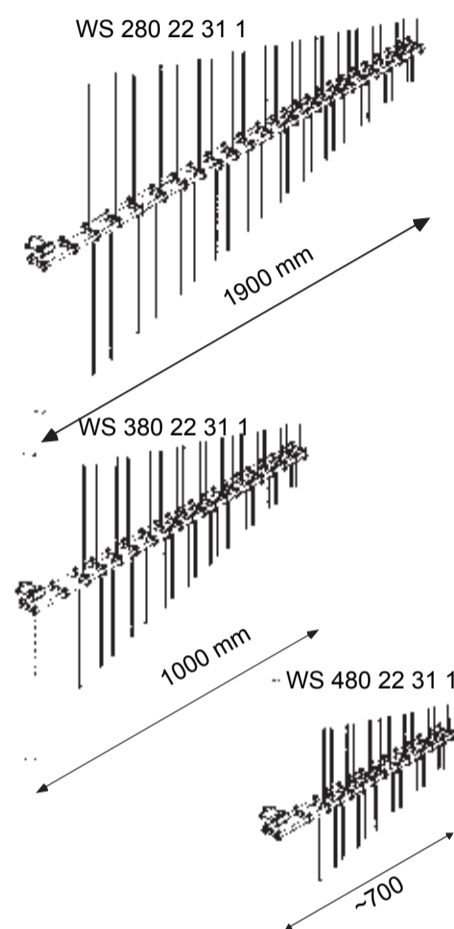
WIPIC reserves the right to amend specifications in the light of continuing development.



### LOG PERIODIC ANTENNAS

**WS .80 22 31 1**

**87 ... 1000 MHz**



<b>TYPE NO.</b>	<b>WS 280 22 31 1:</b> 87.5 - 1000 MHz <b>WS 380 22 31 1:</b> 146 - 1000 MHz <b>WS 480 22 31 1:</b> 380 - 1000 MHz other bands on request
<b>POLARIZATION</b>	vertical or horizontal on request
<b>IMPEDANCE</b>	50 or 75 Ω
<b>GAIN</b>	5-6dB ref. λ/2 dipole 7-8 dBi F/B 20 - 25 dB
<b>VSWR</b>	≤ 2.5 preferred < 1.5
<b>POWER</b>	300 - 1000 watts (depending on frequency)
<b>3 dB BEAMWIDTH</b>	E-plane: 60 - 70° H-plane: 110 - 130°
<b>TERMINATION</b>	2 m cable RG 213/U or RG 11 ending with N male other termination on request
<b>GROUNDING</b>	all metal parts are DC grounded
<b>MOUNTING</b>	mast-ø            clamp 30 - 80 mm      WG 11 (standard) 50 - 104 mm     WG 12 (option) clamp for other mast-ø on request
<b>MATERIAL</b>	aluminium, bolts of stainless steel, weather-resistant plastics
<b>WEIGHT</b>	280 ..            380 ..            480 ..
<b>WIND AREA</b>	3.9 kg            2.3 kg            1.6 kg
<b>WIND LOAD</b>	0.21 m <sup>2</sup> 0.093 m <sup>2</sup> 0.06 m <sup>2</sup>
	270 N            120 N            76 N at 150 km/h
	200 N            90 N             57 N at 130 km/h

WS 280 22 31 1



KW 1-08

WIPIC reserves the right to amend specifications in the light of continuing development.