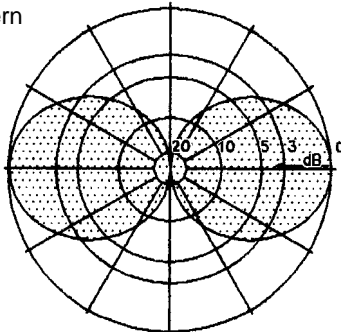


ORDERNUMBER	TYPE
WS 400 44 1.	omnidirectional, heavy duty, with radome
WS 400 54 1.	omnidirectional, heavy duty, with radome
WS 400 74 1. .	hatantenna for wall mounting
WS 400 81 5. .	ground plane omnidirectional for wall mounting
WS 400 83 11	omnidirectional broadband 230 - 400 MHz
WS 400 84 10	omnidirectional 380 - 470 MHz
WS 400 84 1.	omnidirectional 220 ... 470 MHz
WS 400 86 1.	omnidirectional adjustable
WS 400 92 1	discone 225 - 1200 MHz
WS 401 02 12.	8 dB offset pattern antenna
WS 401 03 12.	8 dB offset pattern antenna, heavy duty, with radome
WS 401 02 13.	10 dB offset pattern antenna
WS 401 03 13.	10 dB offset pattern antenna, heavy duty, with radome
WS 401 03 15.	7 dB omnidirectional antenna, heavy duty, with radome
WS 401 12 10.	3 dB offset pattern antenna
WS 401 13 10.	3 dB offset pattern antenna, heavy duty, with radome
WS 401 12 11.	3 dB offset pattern antenna
WS 401 13 11 9	3 dB offset pattern antenna, heavy duty, with radome
WS 401 12 . 9 9	dipole for wall mounting
WS 401 13 . 9 9	dipole for wall mounting, heavy duty, with radome
WS 401 22 19 .	light dipole for wall mounting
WS 401 24 10 8	light dipole for with radome

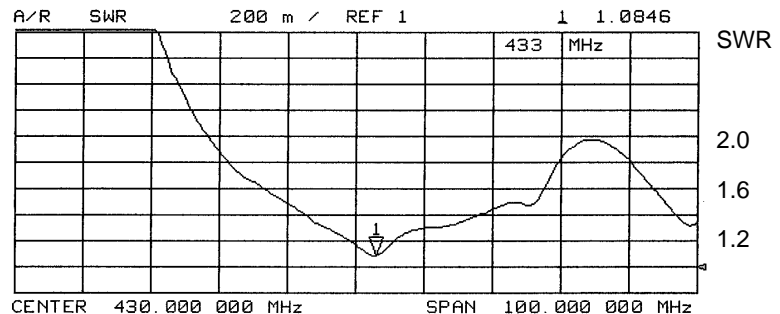


<b>TYPE NO.</b>	<b>WS 400 14 54: 380 - 400 MHz</b> <b>WS 400 14 55: 400 - 430 MHz</b> <b>WS 400 14 56: 420 - 450 MHz</b> <b>WS 400 14 57: 440 - 470 MHz</b> further frequencies on request
<b>FREQUENCY</b>	the antenna is tuned on the requested frequency band width 10 - 20 MHz
<b>DESCRIPTION</b>	dipole with black radome (white on request) The antenna is specifically designed for icing conditions
<b>POLARIZATION</b>	vertical
<b>IMPEDANCE</b>	50 Ω
<b>GAIN</b>	0 dB (ref. λ/2 dipole)
<b>VSWR</b>	< 1.3 on tuned frequency
<b>POWER</b>	max. 150 watts, higher ratings on request
<b>3 dB BEAMWIDTH</b>	horizontal, H plane: 360° vertical, E plane: 78°
<b>TERMINATION</b>	2.5 m cable RG 58 ending with BNC male other termination on request
<b>GROUNDING</b>	all metal parts are DC grounded
<b>MOUNTING</b>	to 40 - 66 mm ø mast cable runs inside or outside the mast
<b>MATERIAL</b>	aluminium, bolts of stainless steel, radome of uv-stabilized polyethylene
<b>WEIGHT</b>	1.5 kg
<b>WIND AREA</b>	0.028 m <sup>2</sup>
<b>WIND LOAD</b>	34 N (150 km/h) 25 N (130 km/h)
<b>DIMENSIONS</b>	length of radome: ~ 350 mm diameter of radome: 63 mm

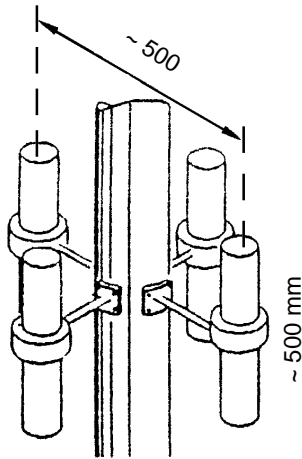
vertical radiation pattern



Typical SWR tuned on 433 MHz







**TYPE NO.**                    **WS 400 54 17 : 390 - 430 MHz**  
**WS 400 54 18 : 420 - 460 MHz**  
**WS 400 54 19 : 440 - 480 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 Ω

**GAIN**                         0 dB (ref. λ/2 dipole)

**VSWR**                        < 1.3, at the limits of the band <1.5

**POWER**                      max. 300 watts

**3 dB BEAMWIDTH**        horizontal, H plane:            360°  
 (deviation from circularity ≤ 1.5 dB)  
 vertical, E plane:                78°

**TERMINATION**            inside the mast ending with N male  
 other termination on request

**GROUNDING**              all metal parts are DC grounded

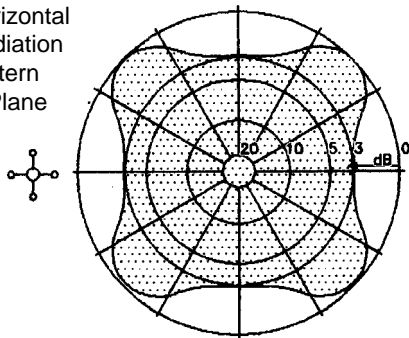
**DELIVERY**                four dipoles and transformer for the  
 dipoles

**MOUNTING**                mast with outer  $\varnothing \leq 104$  mm  
 with clamp of hot dip galvanized steel

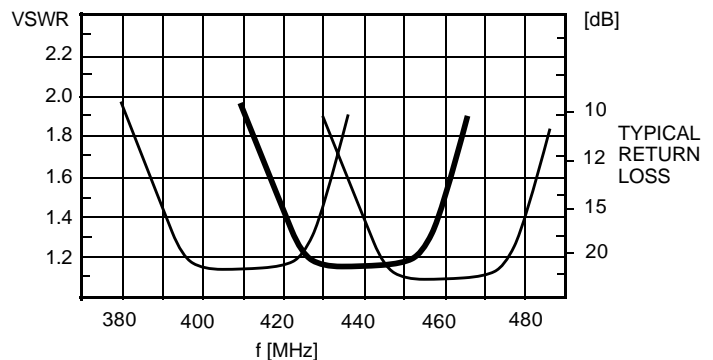
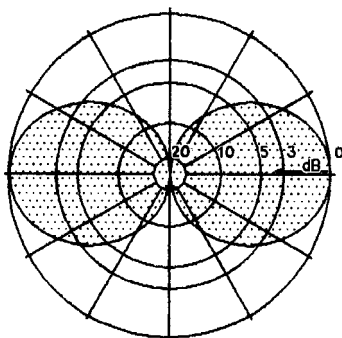
**MATERIAL**                aluminium, bolts of stainless steel, weather-resistant  
 plastics, radome of UV-stabilized polyethylene

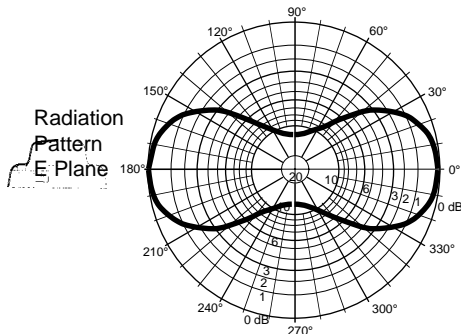
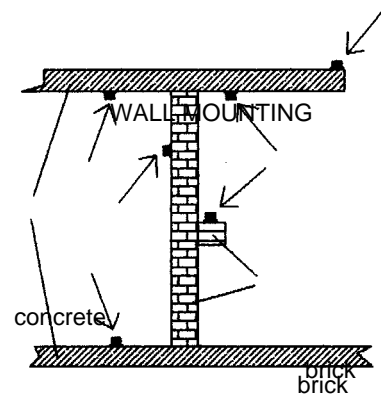
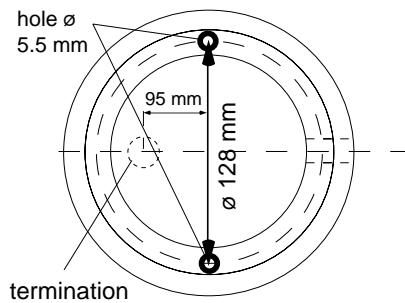
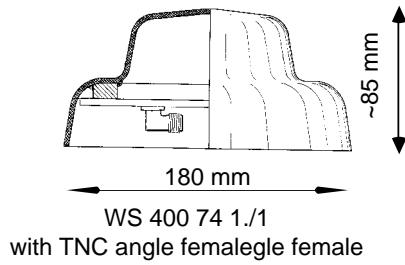
**WEIGHT**                     11 kg  
**WIND AREA**                0.15 m<sup>2</sup>  
**WIND LOAD**                190 N (150 km/h)  
 145 N (130 km/h)

Horizontal  
Radiation  
Pattern  
H Plane

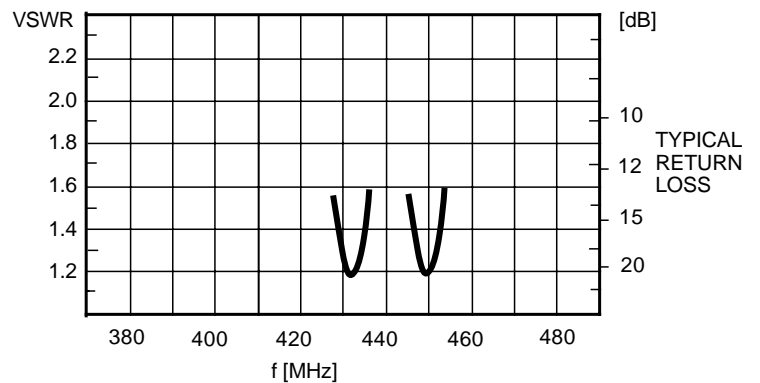


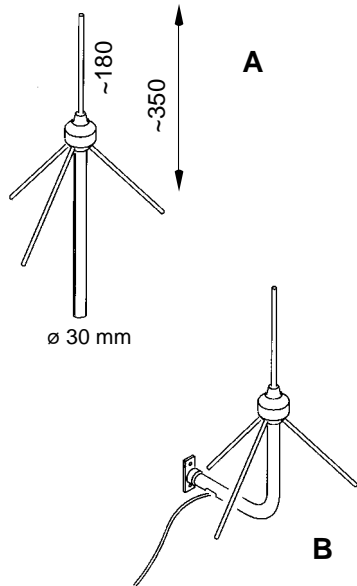
Vertical  
Radiation  
Pattern  
E Plane



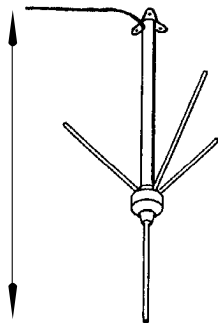


<b>TYPE NO.</b>	<b>WS 400 74 14 .:</b> 430 - 435 MHz <b>WS 400 74 18 .:</b> 448 - 453 MHz further frequencies on request
<b>DESCRIPTION</b>	antenne with white radome, other colours: option The antenna needs no counterpoise and works on walls of brick or concrete.
<b>POLARIZATION</b>	vertical or horizontal (depends on mounting)
<b>IMPEDANCE</b>	50 Ω
<b>GAIN</b>	0 dB (ref. λ/2 dipole)
<b>VSWR</b>	< 1.3, on tuned frequency bandwidth (SWR 1.5) ± 2.5 MHz
<b>POWER</b>	max. 100 watts
<b>3 dB BEAMWIDTH</b>	horizontal, H plane: 360° vertical, E plane: 78° depends on wall construction
<b>TERMINATION</b>	<b>WS 400 74 1. 1:</b> TNC angle female <b>WS 400 74 1. 2:</b> TNC female other termination on request
<b>GROUNDING</b>	all metal parts are DC grounded
<b>MOUNTING</b>	with 2 bolts and 2 dowels (included)
<b>MATERIAL</b>	aluminium, bolts of stainless steel, weather-resistant plastics, radome of halogenfree plastics
<b>WEIGHT</b>	0.6 kg
<b>WIND AREA</b>	0.007 m <sup>2</sup>

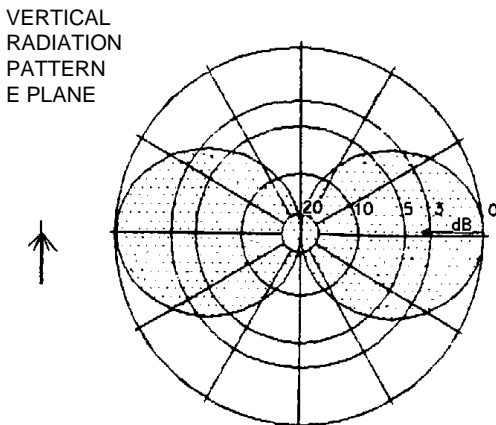




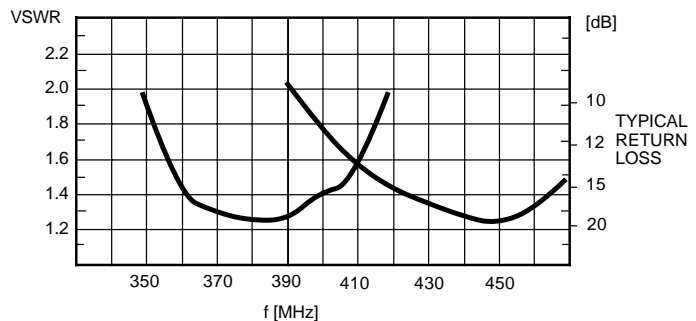
**A**



**B**



<b>TYPE NO.</b>	<b>WS 400 81 57 . . : 370 - 400 MHz</b> <b>WS 400 81 59 . . : 430 - 470 MHz</b> further frequencies on request
<b>DESCRIPTION</b>	light ground plane antenna without radome
<b>POLARIZATION</b>	vertical
<b>IMPEDANCE</b>	50 Ω
<b>GAIN</b>	0 dB (ref. λ/2 dipole)
<b>VSWR</b>	< 1.5
<b>POWER</b>	max. 150 watts
<b>3 dB BEAMWIDTH</b>	horizontal, H plane: 360° vertical, E plane: 78°
<b>TERMINATION</b>	~ 1.5 m cable RG 213/U ending with N male other termination on request
<b>GROUNDING</b>	radiator not grounded, lightning protector type LPN is recommended
<b>MOUNTING</b>	WS 4 .. A on mast with clamp WB 137 (option) WS 4 .. B on walls with bracket and flange nr. 22 WS 4 .. C on ceiling/floor with flange no 22
<b>MATERIAL</b>	aluminium, bolts of stainless steel, weather-resistant plastics
<b>WEIGHT</b>	~ 0.9 kg
<b>WIND AREA</b>	0.03 m <sup>2</sup>
<b>WIND LOAD</b>	38 N (150 km/h) 30 N (130 km/h)



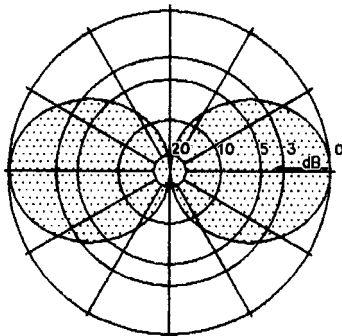
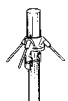
~ 800 mm



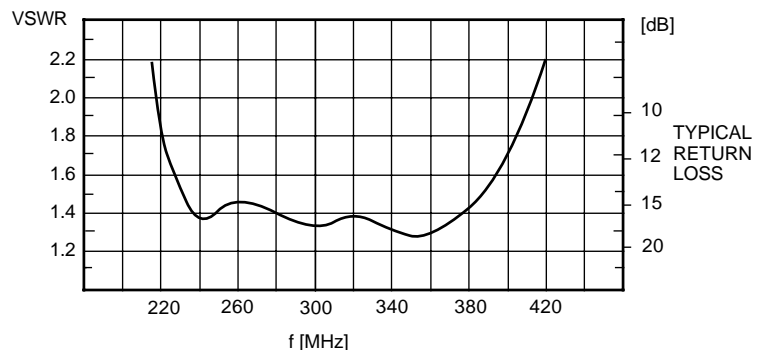
cable running  
inside the mast

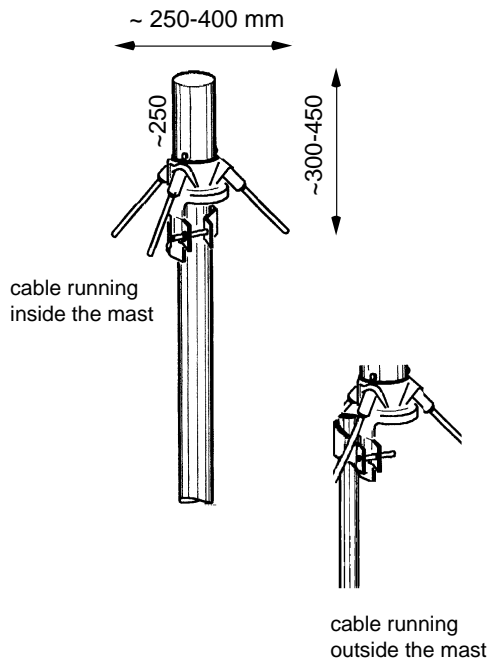
<b>TYPE NO.</b>	<b>WS 400 83 11: 230 - 400 MHz</b> further frequencies on request
<b>DESCRIPTION</b>	antenna with radome The radome protects the antenna from environmental influences, icing, and increases the lightning protection.
<b>POLARIZATION</b>	vertical
<b>IMPEDANCE</b>	50 $\Omega$
<b>GAIN</b>	0 dB (ref. $\lambda/2$ dipole)
<b>VSWR</b>	< 1.5, at the limits of the band < 1.8
<b>POWER</b>	max. 150 watts
<b>3 dB BEAMWIDTH</b>	horizontal, H plane: 360° vertical, E plane: 270 MHz 110° 330 MHz 78°
<b>TERMINATION</b>	~ 1 m cable ending with N male other termination on request
<b>GROUNDING</b>	radiator not grounded lightning protector recommended
<b>MOUNTING</b>	to 40 - 66 mm $\varnothing$ mast cable runs inside or outside the mast
<b>MATERIAL</b>	aluminium, bolts of stainless steel, weather-resistant plastics, radome of UV-stabilized polyethylene

Vertical  
Radiation  
Pattern  
E Plane



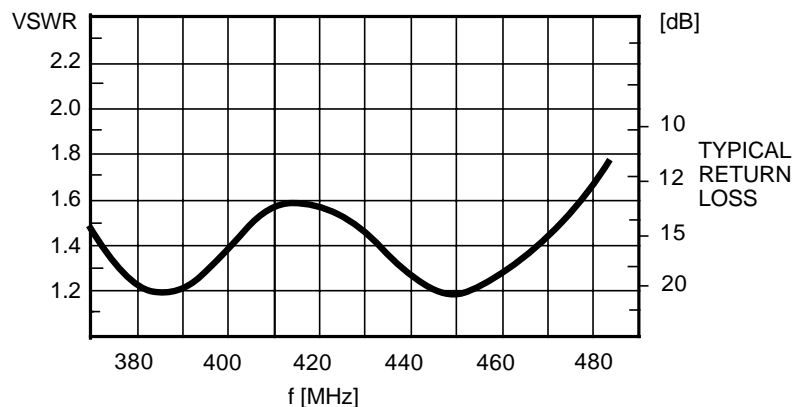
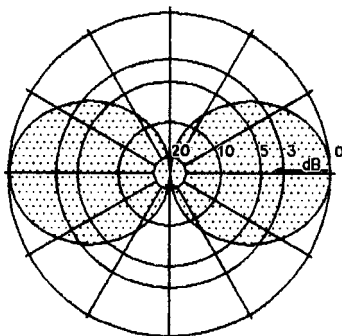
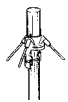
<b>WEIGHT</b>	1.9 kg
<b>WIND AREA</b>	0.05 m <sup>2</sup>
<b>WIND LOAD</b>	63 N (150 km/h) 47 N (130 km/h)

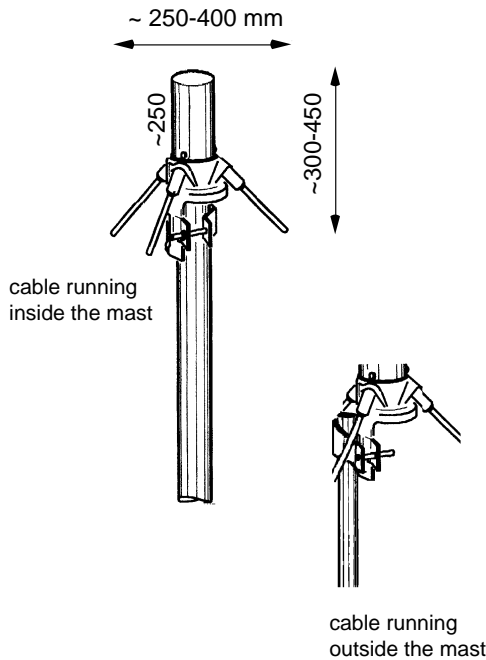




<b>TYPE NO.</b>	<b>WS 400 84 10: 380 - 470 MHz</b> further frequencies on request
<b>DESCRIPTION</b>	antenna with radome The radome protects the antenna from environmental influences, icing, and increases the lightning protection.
<b>POLARIZATION</b>	vertical
<b>IMPEDANCE</b>	50 Ω
<b>GAIN</b>	0 dB (ref. λ/2 dipole)
<b>VSWR</b>	< 1.5 preferred, other <1.6
<b>POWER</b>	max. 150 watts
<b>3 dB BEAMWIDTH</b>	horizontal, H plane: 360° vertical, E plane: 78°
<b>TERMINATION</b>	~ 0.5 m cable ending with N male the cable must NOT be shortened (transformer) other termination on request
<b>GROUNDING</b>	all metal parts are DC grounded
<b>MOUNTING</b>	to 40 - 66 mm ø mast cable runs inside or outside the mast
<b>MATERIAL</b>	aluminium, bolts of stainless steel, weather-resistant plastics, radome of UV-stabilized polyethylene
<b>WEIGHT</b>	1.3 kg
<b>WIND AREA</b>	0.023 m <sup>2</sup>
<b>WIND LOAD</b>	30 N (150 km/h) 22 N (130 km/h)

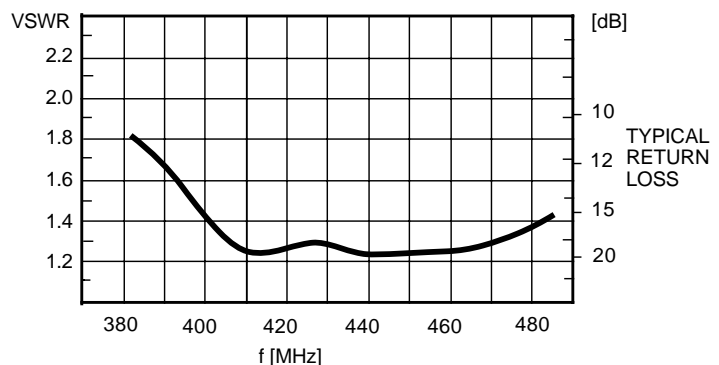
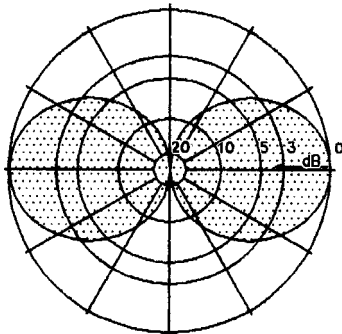
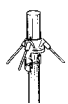
Vertical Radiation Pattern E Plane

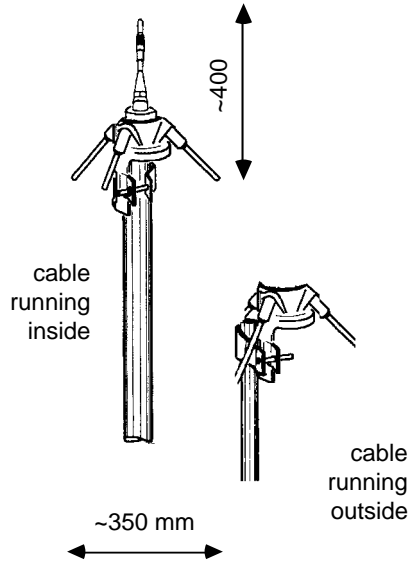




<b>TYPE NO.</b>	<b>WS 400 84 14: 220 - 250 MHz</b> <b>WS 400 84 15: 240 - 280 MHz</b> <b>WS 400 84 16: 270 - 315 MHz</b> <b>WS 400 84 17: 304 - 370 MHz</b> <b>WS 400 84 18: 340 - 410 MHz</b> <b>WS 400 84 19: 400 - 470 MHz</b> further frequencies on request	
<b>DESCRIPTION</b>	antenna with radome The radome protects the antenna from environmental influences, icing, and increases the lightning protection.	
<b>POLARIZATION</b>	vertical	
<b>IMPEDANCE</b>	50 Ω	
<b>GAIN</b>	0 dB (ref. λ/2 dipole)	
<b>VSWR</b>	< 1.3, at the limits of the band <1.5	
<b>POWER</b>	max. 150 watts	
<b>3 dB BEAMWIDTH</b>	horizontal, H plane: 360° vertical, E plane: 78°	
<b>TERMINATION</b>	~ 1 m cable ending with N male the cable must NOT be shortened (transformer) other termination on request	
<b>GROUNDING</b>	all metal parts are DC grounded	
<b>MOUNTING</b>	to 40 - 66 mm ø mast cable runs inside or outside the mast	
<b>MATERIAL</b>	aluminium, bolts of stainless steel, weather-resistant plastics, radome of UV-stabilized polyethylene	
<b>WEIGHT</b>	WS 400 ... 9	WS 400 .. 4
<b>WIND AREA</b>	1.3 kg	1.45 kg
<b>WIND LOAD</b>	0.023 m <sup>2</sup>	0.033 m <sup>2</sup>
	30 N (150 km/h)	42 N
	22 N (130 km/h)	31 N
	WS 400 84 19	

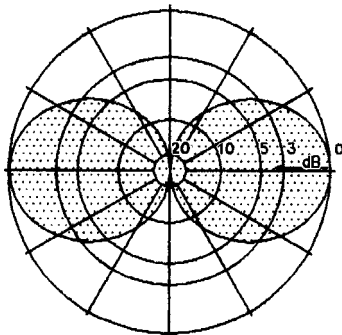
Vertical Radiation Pattern E Plane

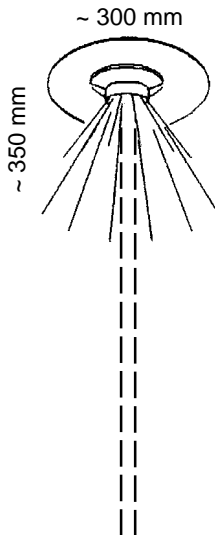




<b>TYPE NO.</b>	<b>WS 400 86 16:</b> 230 ... 320 MHz <b>WS 400 86 17:</b> 330 ... 410 MHz <b>WS 400 86 18:</b> 390 ... 480 MHz further frequencies on request
<b>DESCRIPTION</b>	light ground plane antenna with adjustable radiator
<b>POLARIZATION</b>	vertical
<b>IMPEDANCE</b>	50 Ω
<b>GAIN</b>	0 dB (ref. λ/2 dipole)
<b>VSWR</b>	< 1.3, on tuned frequency
<b>POWER</b>	max. 150 watts
<b>3 dB BEAMWIDTH</b>	horizontal, H plane: 360° vertical, E plane: 78°
<b>TERMINATION</b>	1 m cable RG 213/U ending with N male other termination on request
<b>GROUNDING</b>	radiator not grounded, lightning protector recommended
<b>MOUNTING</b>	to 40 - 66 mm ø mast cable runs inside or outside the mast
<b>MATERIAL</b>	aluminium, bolts of stainless steel, weather-resistant plastics
<b>WEIGHT</b>	0.7 kg
<b>WIND AREA</b>	ca. 0.04 m <sup>2</sup>
<b>WIND LOAD</b>	50 N bei 150 km/h 38 N bei 130 km/h

Vertical  
Radiation  
Pattern  
E Plane

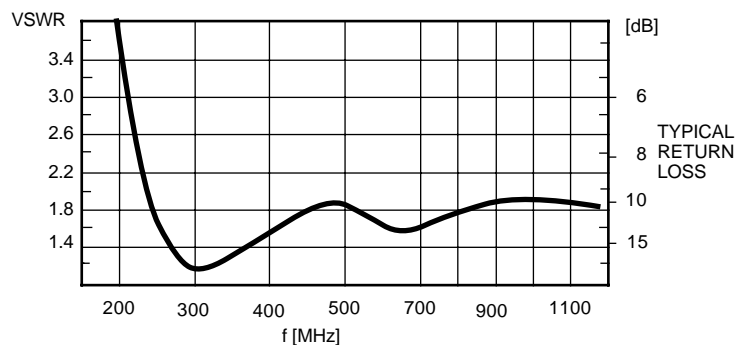
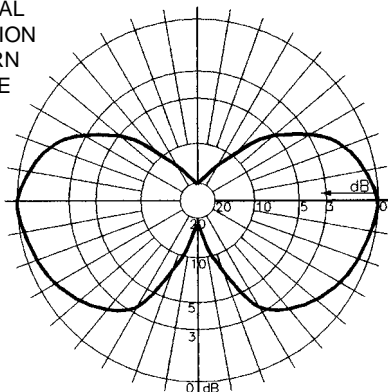


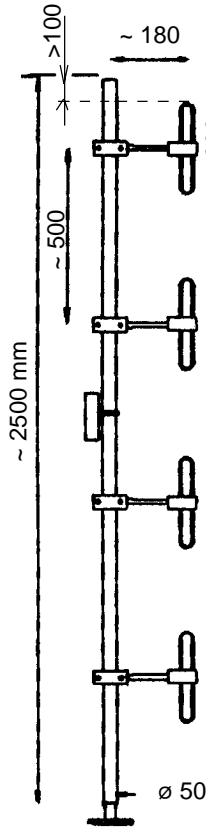


<b>TYPE NO.</b>	<b>WS 400 92 1: 225 - 1200 MHz</b>
<b>POLARIZATION</b>	vertical
<b>IMPEDANCE</b>	50 Ω
<b>GAIN</b>	0 dB (ref. λ/2 dipole)
<b>VSWR</b>	≤ 1.8, at the limits of the band ≤ 2
<b>POWER</b>	max. 200 watts (depending on frequency)
<b>3 dB BEAMWIDTH</b>	horizontal, H plane: 360°, ± 2 dB
<b>TERMINATION</b>	1 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>	on tubular mast with outer ø 42 mm (sandartd) cable running inside the mast clamps for other mast ø on request, with reduction to the supporting mast (option) additional parts have to be ordered separately
<b>MATERIAL</b>	aluminium, bolts of stainless steel, weather-resistant plastics
<b>WEIGHT</b>	2 kg
<b>WIND AREA</b>	0.08 m <sup>2</sup>
<b>WIND LOAD</b>	102 N (150 km/h) 76 N (130 km/h)

**New! radiator  
grounded**

VERTICAL  
RADIATION  
PATTERN  
H PLANE





**TYPE NO.** WS 401 02 12 7 : 375 - 400 MHz  
 WS 401 02 12 8 : 400 - 435 MHz  
 WS 401 02 12 9 : 435 - 470 MHz  
 further frequencies and tilt on request

**POLARIZATION** vertical

**IMPEDANCE** 50 Ω

**GAIN** ref. λ/2 dipole  
 8 dB in forward direction  
 2 dB in reverse direction

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

**POWER** max. 150 watts

**3 dB BEAMWIDTH** horizontal, H plane: 180°  
 vertical, E plane: 20°

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

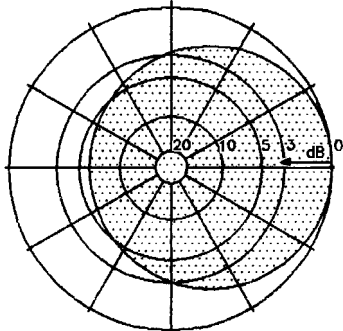
**GROUNDING** all metal parts are DC grounded

**DELIVERY** 4 dipoles with junction and box WAK 1

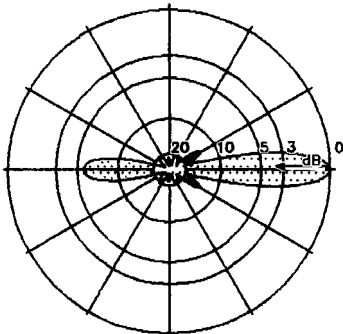
**MOUNTING** mast-ø clamps  
 30 - 80 mm WG 8 (standard)  
 50 - 104 mm WG 9 (option)  
 clamp for other mast-ø on request

Horizontal Radiation Pattern H Plane

MAST DIPOL

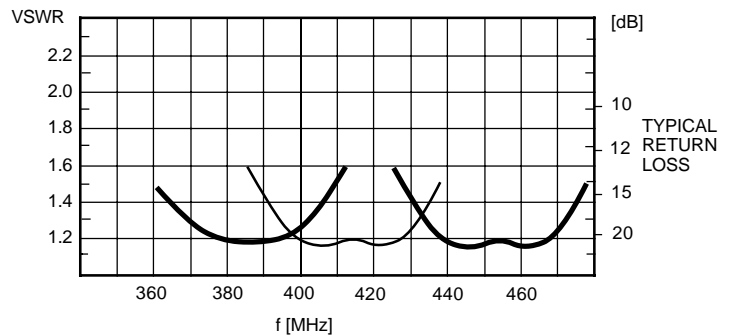


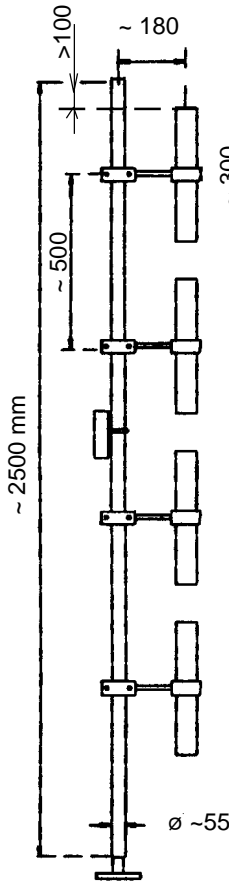
Vertical Radiation Pattern E Plane



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

**WEIGHT** 7.1 kg  
**WIND AREA** 0.15 m<sup>2</sup>  
**WIND LOAD** 192 N (150 km/h)  
 145 N (130 km/h)





**TYPE NO.** WS 401 03 12 7 : 375 - 400 MHz  
 WS 401 03 12 8 : 400 - 435 MHz  
 WS 401 03 12 9 : 435 - 470 MHz  
 further frequencies and tilt 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 Ω

**GAIN** ref. λ/2 dipole  
 8 dB in forward direction  
 2 dB in reverse direction

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

**POWER** max. 300 watts

**3 dB BEAMWIDTH** horizontal, H plane: 180°  
 vertical, E plane: 20°

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

**GROUNDING** all metal parts are DC grounded

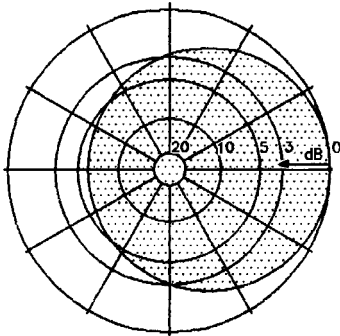
**DELIVERY** 4 dipoles with junction and box WAK 1

**MOUNTING** *mast-ø* 30 - 80 mm *clamps* WG 5 (standard)  
 50 - 104 mm WG 6 (option)  
 clamp for other mast-ø on request

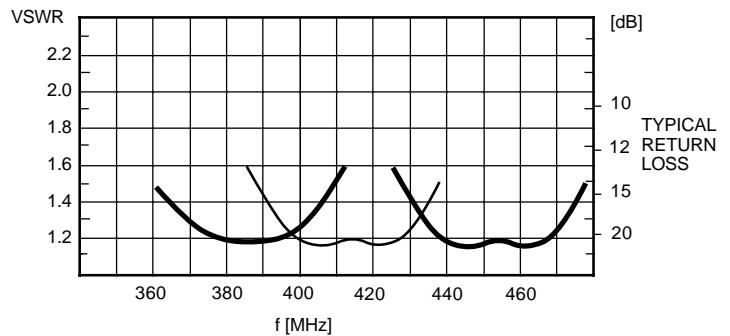
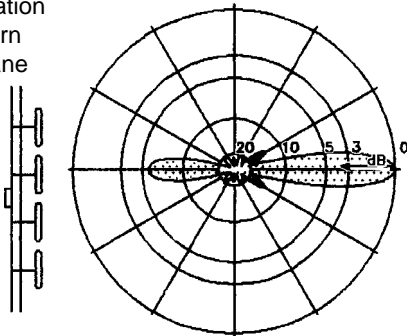
**MATERIAL** aluminium, bolts of stainless steel, weather-resistant plastics, radome of UV-stabilized polyethylene

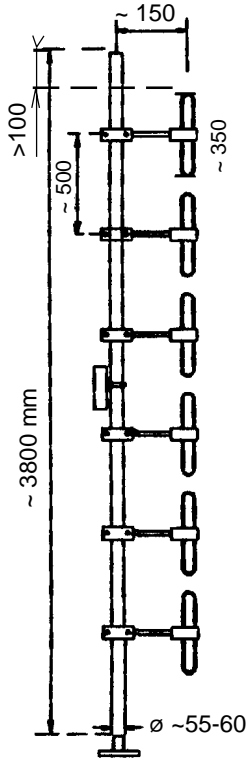
**WEIGHT** 14 kg  
**WIND AREA** 0.24 m<sup>2</sup>  
**WIND LOAD** 310 N (150 km/h)  
 230 N (130 km/h)

Horizontal Radiation Pattern H Plane  
 MAST DIPOL



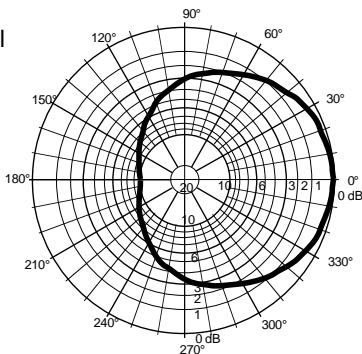
Vertical Radiation Pattern E Plane



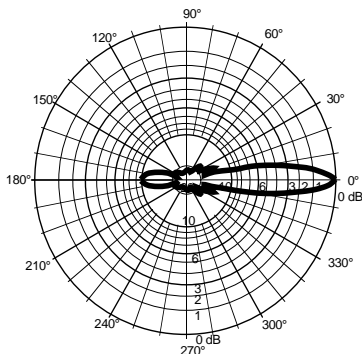


<b>TYPE NO.</b>	<b>WS 401 02 13 7 : 370 - 400 MHz</b> <b>WS 401 02 13 8 : 400 - 435 MHz</b> <b>WS 401 02 13 9 : 435 - 470 MHz</b> further frequencies and tilt on request
<b>POLARIZATION</b>	vertical
<b>IMPEDANCE</b>	50 Ω
<b>GAIN</b>	10 dB (ref. to λ/2 dipole) 2 dB in reverse direction
<b>VSWR</b>	≤ 1.4
<b>POWER</b>	max. 150 watts, higher ratings on request
<b>3 dB BEAMWIDTH</b>	horizontal (H-plane) 170° vertical (E-plane) 13°
<b>TERMINATION</b>	in the junction box WAK 1 with N male other termination on request
<b>GROUNDING</b>	all metal parts are DC grounded
<b>DELIVERY</b>	6 dipoles with junction and box WAK 1
<b>MOUNTING</b>	<i>mast ø</i> <i>clamp (see chapt. 10)</i> 30 - 80 mm                WG 8 (standard) 50 - 104 mm              WG 9 (option) clamp for other mast-ø on request

Horizontal Radiation Pattern H Plane

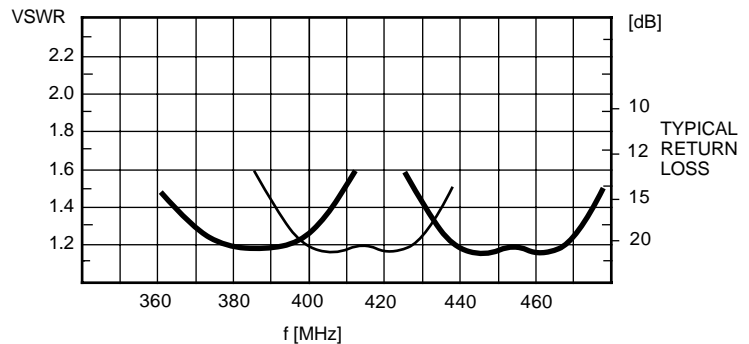


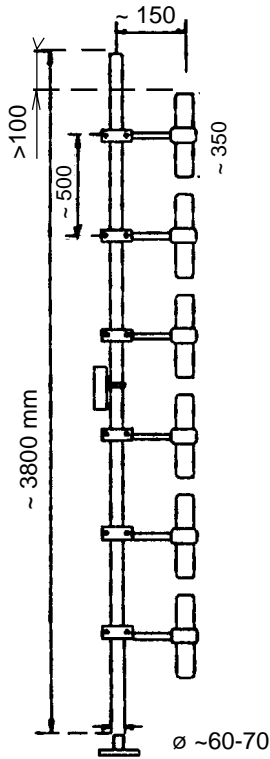
Vertical Radiation Pattern E Plane



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

**WEIGHT** 11 kg  
**WIND AREA** 0.23 m<sup>2</sup>  
**WIND LOAD** 300 N (150 km/h)  
 230 N (130 km/h)





**TYPE NO.**            **WS 401 03 13 7 : 370 - 400 MHz**  
**WS 401 03 13 8 : 400 - 435 MHz**  
**WS 401 03 13 9 : 435 - 470 MHz**  
 further frequencies and tilt on request

**DESCRIPTION**     The radome protects the antenna dipoles against environmental influences, icing, and increases the lightning protection.

**POLARIZATION**    vertical

**IMPEDANCE**        50  $\Omega$

**GAIN**                10 dB (ref. to  $\lambda/2$  dipole)  
 2 dB in reverse direction

**VSWR**                 $\leq 1.4$

**POWER**             max. 300 watts, higher ratings on request

**3 dB BEAMWIDTH** horizontal (H-plane) 170°  
 vertical (E-plane) 13°

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

**GROUNDING**       all metal parts are DC grounded

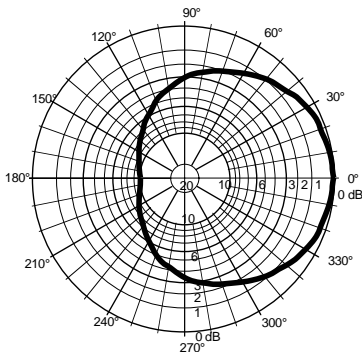
**DELIVERY**         6 dipoles with junction and box WAK 1

**MOUNTING**        *mast  $\varnothing$*                 *clamp (see chapt. 10)*  
 30 - 80 mm            WG 5 (standard)  
 50 - 104 mm         WG 6 (option)  
 clamp for other mast- $\varnothing$  on request

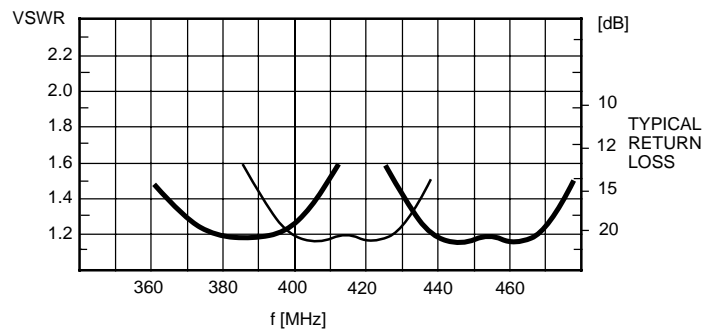
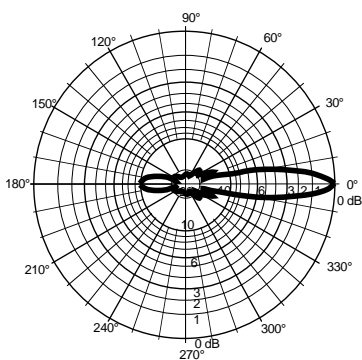
**MATERIAL**         aluminium, bolts of stainless steel,  
 radome of UV-stabilized polyethylene

**WEIGHT**             17 kg  
**WIND AREA**        0.36 m<sup>2</sup>  
**WIND LOAD**        460 N (150 km/h)  
 350 N (130 km/h)

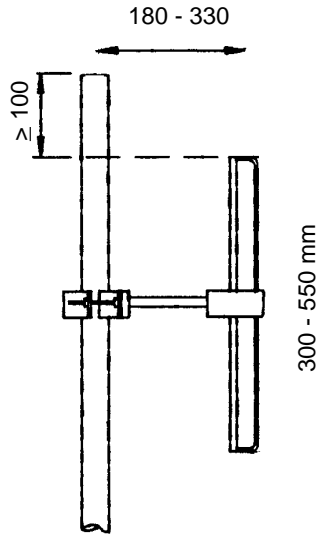
Horizontal Radiation Pattern H Plane



Vertical Radiation Pattern E Plane



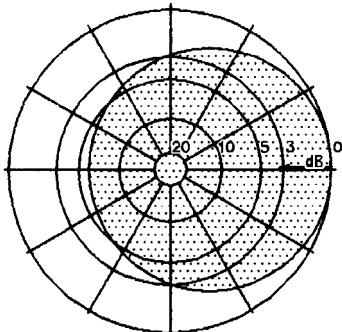




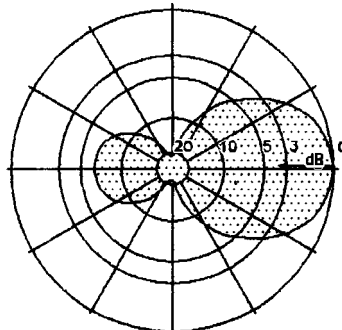
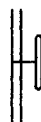
<b>TYPE NO.</b>	<b>WS 401 12 10 6: 225 - 230 MHz</b> <b>WS 401 12 10 7: 290 - 370 MHz</b> <b>WS 401 12 10 8: 350 - 440 MHz</b> <b>WS 401 12 10 9: 380 - 470 MHz</b> further frequencies on request
<b>POLARIZATION</b>	vertical
<b>IMPEDANCE</b>	50 Ω
<b>GAIN</b>	3 dB (ref. λ/2 dipole) 5 dBi
<b>VSWR</b>	< 1.3, at the limits of the band <1.4
<b>POWER</b>	max. 150 watts
<b>3 dB BEAMWIDTH</b>	horizontal, H plane: 180° vertical, E plane: 75°
<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>mounting clamps</i> 30 - 80 mm                WG 8 (standard) 50 - 104 mm             WG 9 (option) clamp for other mast-ø on request

Horizontal Radiation Pattern H Plane

MAST DIPOL

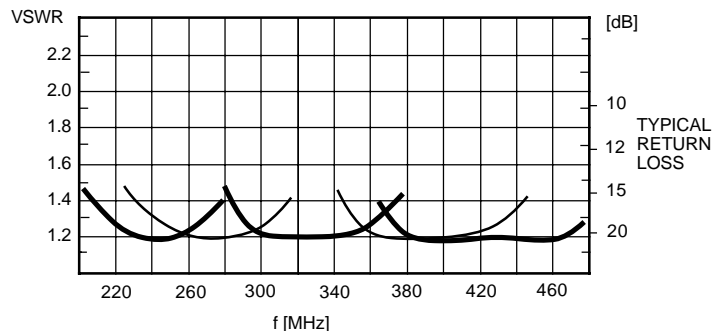


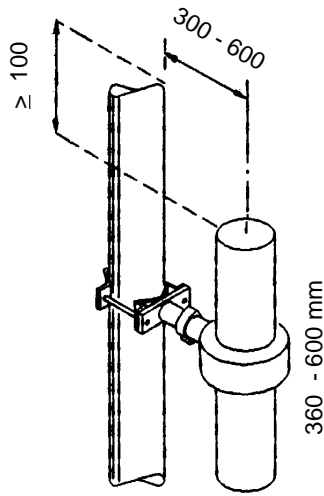
Vertical Radiation Pattern E Plane



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

**WEIGHT**                            1.2 kg  
**WIND AREA**                      0.021 m<sup>2</sup>  
**WIND LOAD**                      28 N (150 km/h)  
     20 N (130 km/h)





**TYPE NO.** WS 401 13 10 6: 225 - 300 MHz  
 WS 401 13 10 7: 290 - 370 MHz  
 WS 401 13 10 8: 360 - 425 MHz  
 WS 401 13 10 9: 380 - 470 MHz  
 further frequencies on request

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

**POLARIZATION** vertical

**IMPEDANCE** 50 Ω

**GAIN** 3 dB (ref. λ/2 dipole)  
 5 dBi

**VSWR** < 1.3, at the limits of the band < 1.5

**POWER** 300 watts

**3 dB BEAMWIDTH** horizontal, H plane: 180°  
 vertical, E plane: 75°

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

**GROUNDING** all metal parts are DC grounded

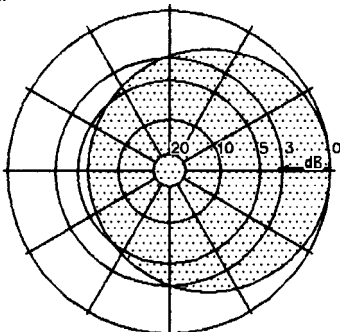
**MOUNTING** mast-ø clamp  
 30 - 80 mm WG 5 (standard)  
 50 - 104 mm WG 6 (option)  
 clamp for other mast-ø on request

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

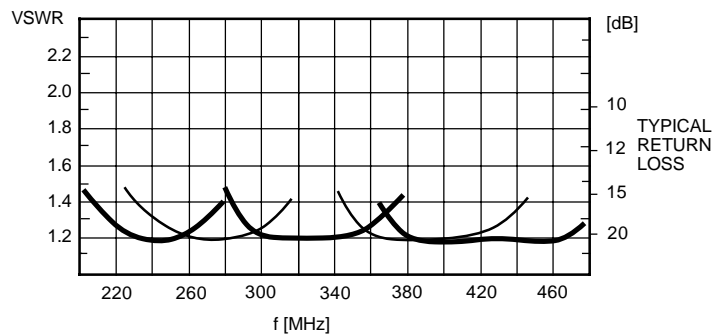
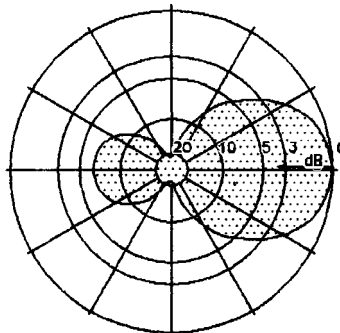
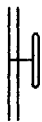
**WEIGHT** 2.8 kg  
**WIND AREA** 0.044 m<sup>2</sup>  
**WIND LOAD** 57 N (150 km/h)  
 43 N (130 km/h)

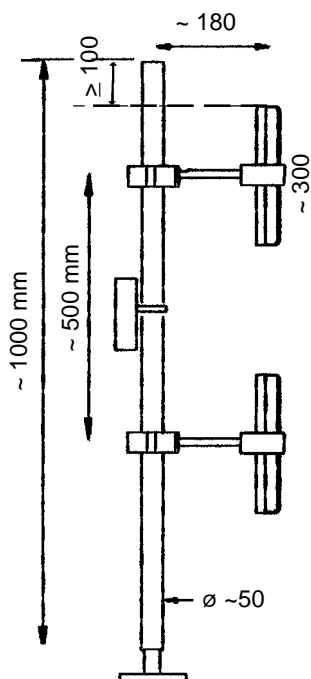
Horizontal Radiation Pattern H Plane

MAST DIPOL



Vertical Radiation Pattern E Plane





**TYPE NO.**

WS 401 12 11 5 : 230 - 275 MHz  
 WS 401 12 11 6 : 260 - 310 MHz  
 WS 401 12 11 7 : 300 - 360 MHz  
 WS 401 12 11 8 : 350 - 420 MHz  
 WS 401 12 11 9 : 380 - 470 MHz  
 further frequencies and tilt on request

**POLARIZATION** vertical

**IMPEDANCE** 50 Ω

**GAIN** ref.  $\lambda/2$  dipole  
 6 dB in forward direction (8 dBi)  
 0 dB in reverse direction (2 dBi)

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

**POWER** max. 150 watts

**3 dB BEAMWIDTH** horizontal, H plane: 180°  
 vertical, E plane: 40°

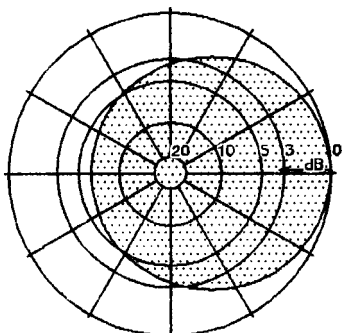
**TERMINATION** in then junction box WAK 1 ending with N male  
 other termination on request

**GROUNDING** all metal parts are DC grounded

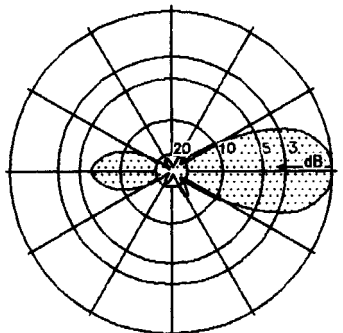
**DELIVERY** 2 dipoles with junction and box WAK 1

Horizontal  
Radiation  
Pattern  
H Plane

Mast Dipol



Vertical  
Radiation  
Pattern  
E Plane

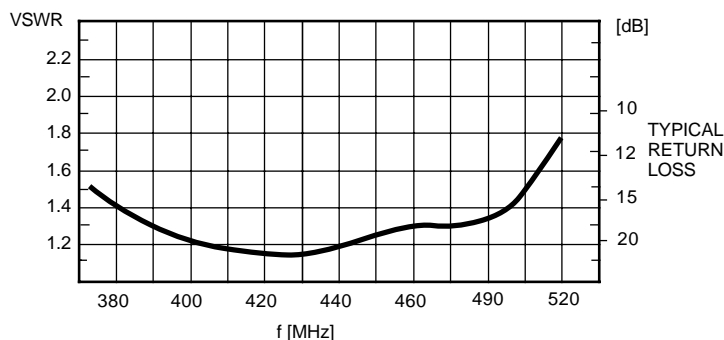


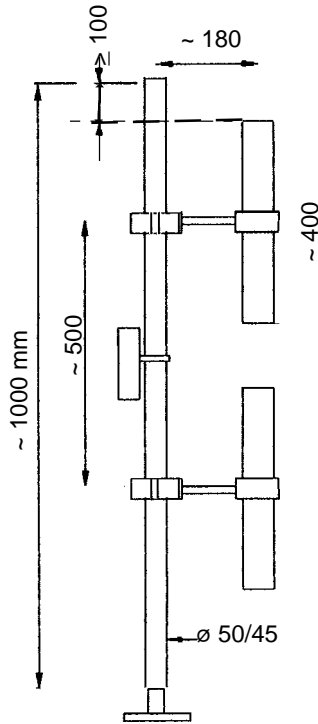
**MOUNTING**

<i>mast-ø</i>	<i>clamps</i>
30 - 80 mm	WG 8 (standard)
50 - 104 mm	WG 9 (option)
clamp for other mast-ø on request	

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

**WEIGHT** 4 - 5 kg  
**WIND AREA** 0.11 - 0.18 m<sup>2</sup>  
**WIND LOAD** 140 - 230 N (150 km/h)  
 106 - 172 N (130 km/h)





**TYPE NO.** WS 401 13 11 9 : 380 - 470 MHz  
further frequencies and tilt 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 Ω

**GAIN** ref. λ/2 dipole  
6 dB in forward direction (8dBi)  
0 dB in reverse direction (2 dBi)

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

**POWER** max. 300 watts

**3 dB BEAMWIDTH** horizontal, H plane: 180°  
vertical, E plane: 40°

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

**GROUNDING** all metal parts are DC grounded

**DELIVERY** 2 dipoles with junction and box WAK 1

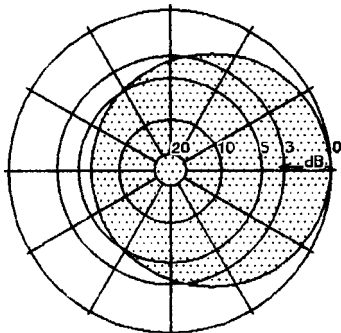
**MOUNTING** mast-ø 30 - 80 mm clamps WG 5 (standard)  
50 - 104 mm WG 6 (option)  
clamp for other mast-ø on request

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

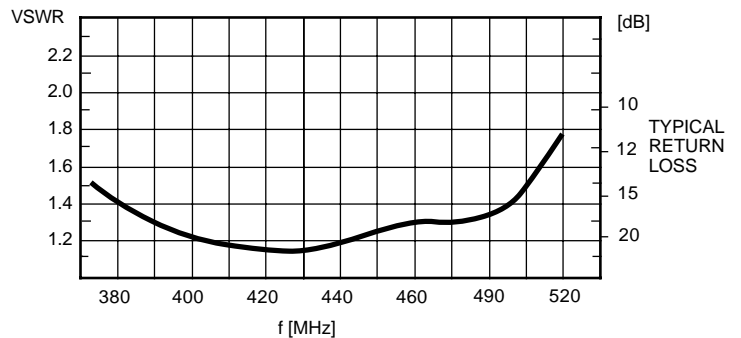
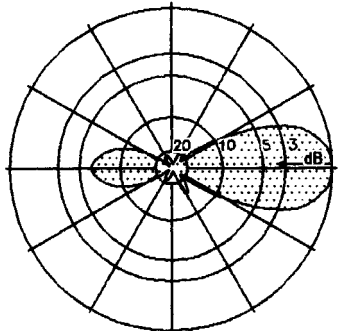
**WEIGHT** 4.2 kg  
**WIND AREA** 0.11 m<sup>2</sup>  
**WIND LOAD** 140 N (150 km/h)  
160 N (130 km/h)

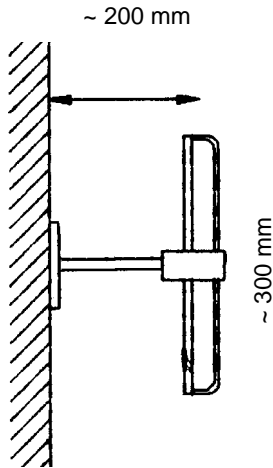
Horizontal Radiation Pattern H Plane

Mast Dipol

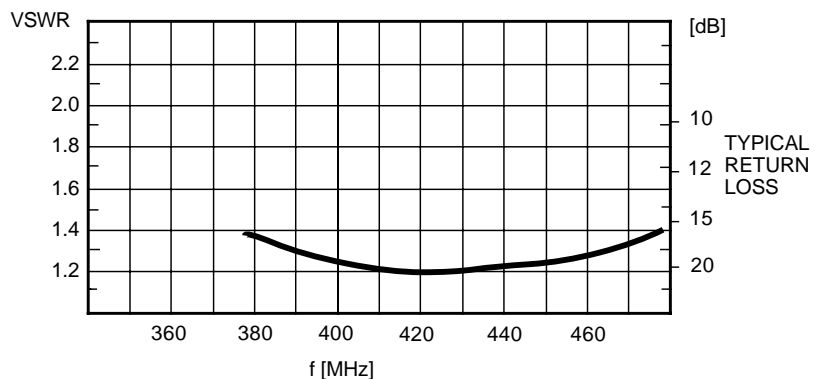


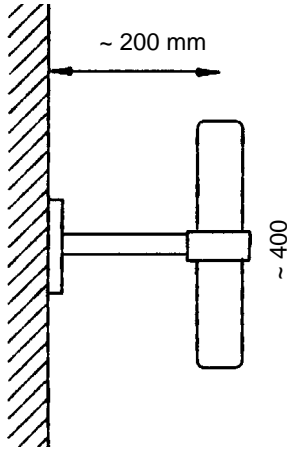
Vertical Radiation Pattern E Plane



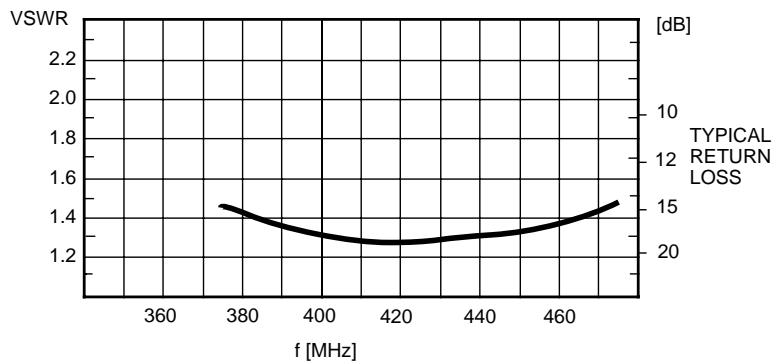


<b>TYPE NO.</b>	vertical polarization <b>WS 401 12 19 9: 380 - 470 MHz</b> horizontal polarization <b>WS 401 12 29 9: 380 - 470 MHz</b> further frequencies on request
<b>IMPEDANCE</b>	50 $\Omega$
<b>GAIN</b>	0 - 6 dB (ref. $\lambda/2$ dipole), depends on wall material
<b>VSWR</b>	< 1.3, at the limits of the band < 1.5
<b>POWER</b>	max. 150 watts, depends on wall material
<b>3 dB BEAMWIDTH</b>	depends on wall material
<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>	with flange no. 21 on wall
<b>MATERIAL</b>	aluminium, bolts of stainless steel, weather-resistant plastics
<b>WEIGHT</b>	0.9 kg
<b>WIND AREA</b>	0.022 m <sup>2</sup>
<b>WIND LOAD</b>	28 N (150 km/h) 21 N (130 km/h)

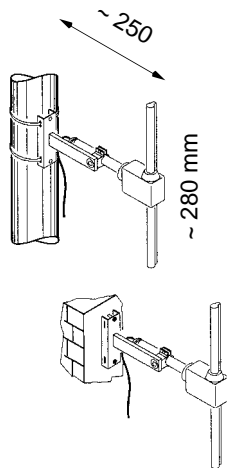




<b>TYPE NO.</b>	vertical polarization <b>WS 401 13 19 9: 380 - 470 MHz</b> horizontal polarization <b>WS 401 13 29 9: 380 - 470 MHz</b> further frequencies on request
<b>DESCRIPTION</b>	heavy duty, with radome The radome protects the antenna dipole from environmental influences, icing, and increases the lightning protection.
<b>IMPEDANCE</b>	50 $\Omega$
<b>GAIN</b>	0 - 6 dB (ref. $\lambda/2$ dipole), depends on wall material
<b>VSWR</b>	< 1.3, at the limits of the band <1.5
<b>POWER</b>	max. 300 watts
<b>3 dB BEAMWIDTH</b>	depends on wall material
<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>	on wall with flange
<b>MATERIAL</b>	aluminium, bolts of stainless steel, weather-resistant plastics, radome of UV-stabilized polyethylene
<b>WEIGHT</b>	1.6 kg
<b>WIND AREA</b>	0.03 m <sup>2</sup>
<b>WIND LOAD</b>	38 N (150 km/h) 28 N (130 km/h)



## ANTENNA FOR WALL MOUNTING WS 401 22 19 . 365 ... 470 MHz



**TYPE NO.** WS 401 22 19 7: 375 - 405 MHz  
 WS 401 22 19 8: 400 - 430 MHz  
 WS 401 22 19 9: 430 - 470 MHz  
 further frequencies on request

**DESCRIPTION** light dipole  
**POLARIZATION** vertical (horizontal on request)  
**IMPEDANCE** 50 Ω  
**GAIN** ~3 dB depending on wall material  
**VSWR** < 1.3, at the limits of the band <1.5  
**POWER** max. 150 watts  
**3 dB BEAMWIDTH** horizontal, H plane: 180°  
 vertical, E plane: 75°

**TERMINATION** 1 m cable RG 303/U ending with N male  
 other termination on request

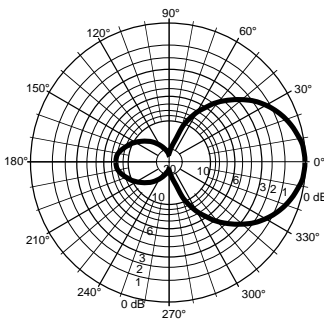
**GROUNDING** all metal parts are DC grounded

**MOUNTING** with flange  
 (similar no. 12)

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

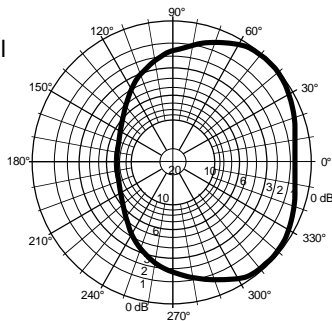
**WEIGHT** 0.5 kg  
**WIND AREA** 0.015 m<sup>2</sup>  
**WIND LOAD** 20 N (150 km/h)  
 15 N (130 km/h)

Vertical  
Radiation  
Pattern  
E Plane

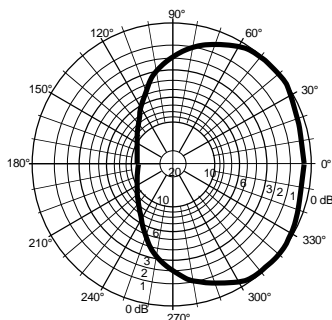


∅ mast 45 mm

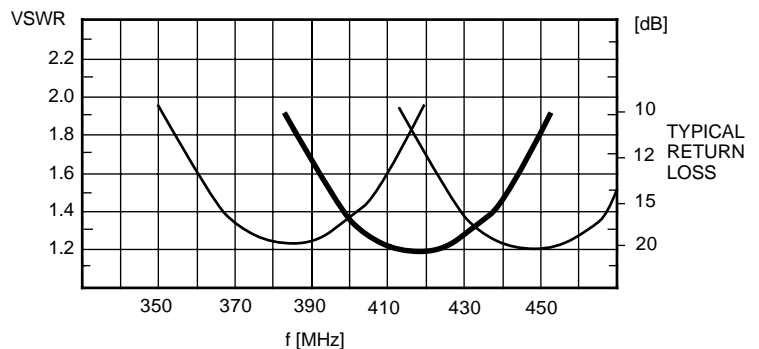
Horizontal  
Radiation  
Pattern  
H Plane



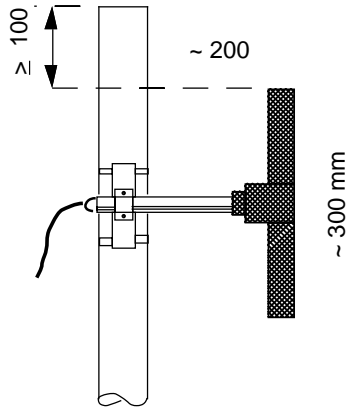
∅ mast 80 mm



KW 1-08



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



**TYPE NO.** WS 401 24 10 8: 400 - 470 MHz  
further frequencies on request

**DESCRIPTION** light dipole with radome  
The radome protects the antenna dipole from environmental influences, icing, and increases the lightning protection, type for wall mounting on request

**POLARIZATION** vertical (horizontal on request)

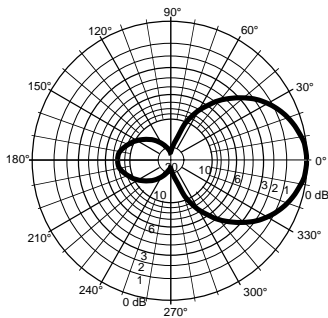
**IMPEDANCE** 50  $\Omega$

**GAIN** 2 dB (ref.  $\lambda/2$  dipole)  
-5 dB in reverse direction

**VSWR** < 1.3, at the limits of the band <1.5

**POWER** max. 100 watts

Vertical Radiation Pattern E Plane



**3 dB BEAMWIDTH** horizontal, H plane: 210°  
vertical, E plane: 78°

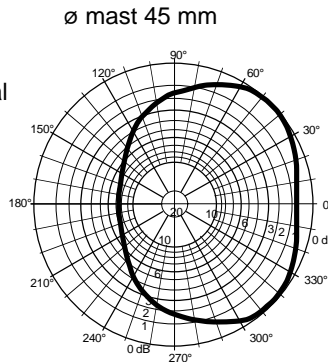
**TERMINATION** 1 m cable RG 303/U ending with N male  
other termination on request

**GROUNDING** all metal parts are DC grounded

**MOUNTING** to 30 - 80 mm  $\varnothing$  mast with WG 21-80 (see chapt. 10)  
clamps for other mast  $\varnothing$  on request

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

Horizontal Radiation Pattern H Plane



**WEIGHT** 0.9 kg  
**WIND AREA** 0.015 m<sup>2</sup>  
**WIND LOAD** 20 N (150 km/h)  
15 N (130 km/h)

MAST DIPOL

