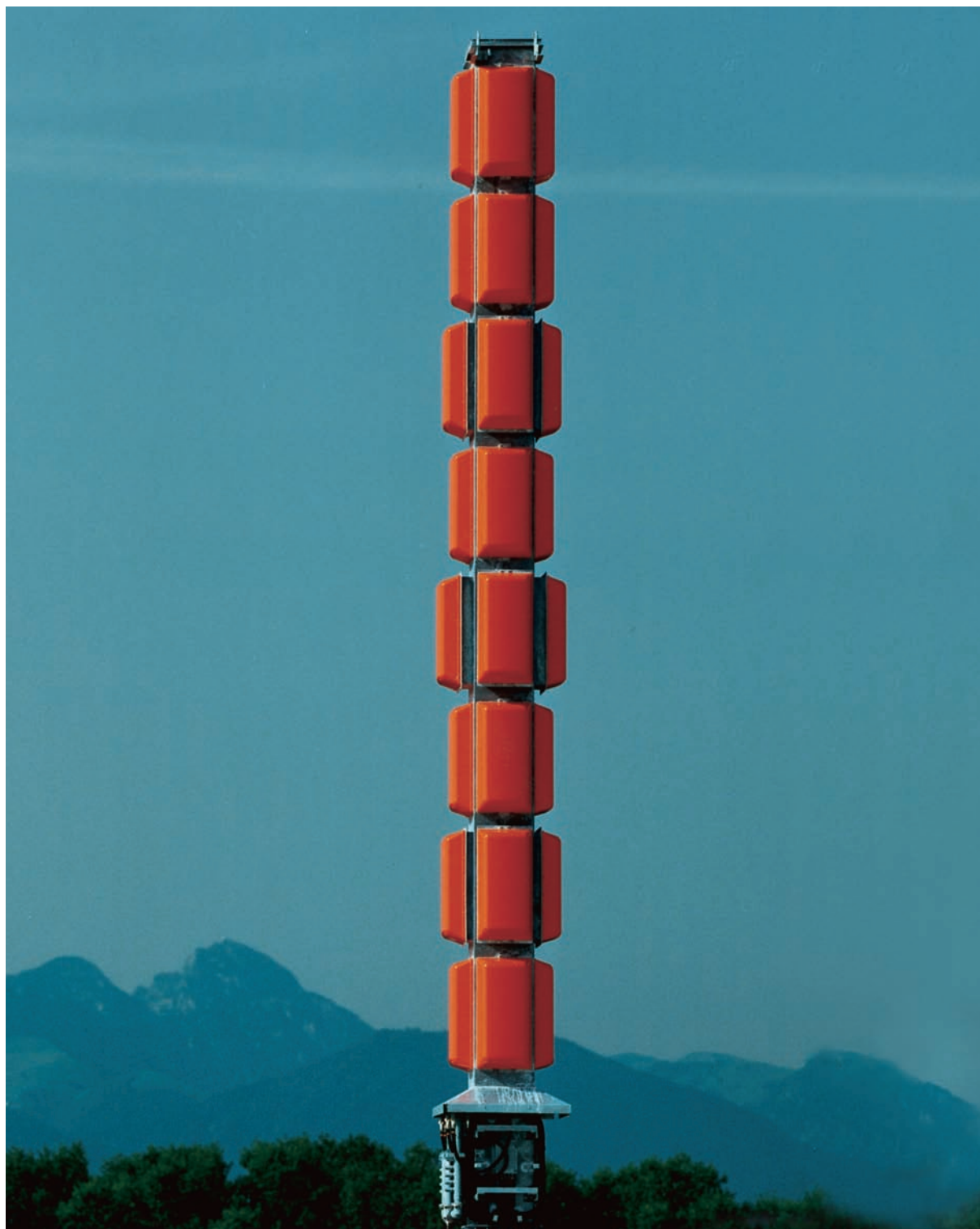


Antenna Systems 470 – 862 MHz



UHF Transmitting Antenna 470–862 MHz

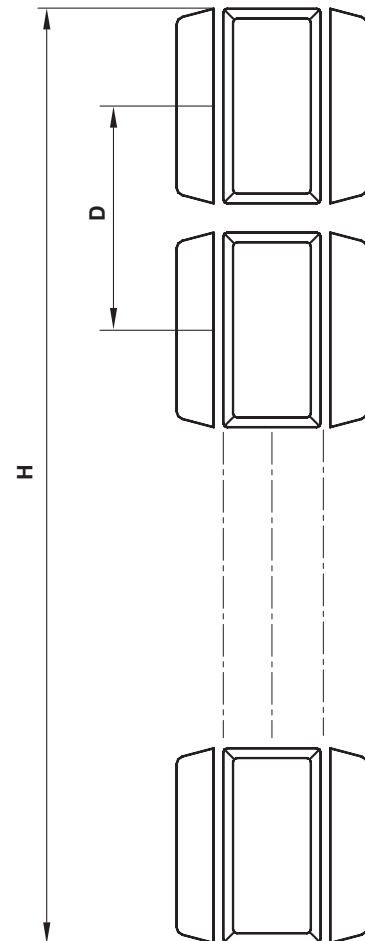
Polarization

H **V**

- Antenna systems consisting of dipole panels (page 96 – 101) for various radiation patterns.
- The feeder network is made up of coaxial power splitters and flexible connecting cables in accordance with the radiation patterns specification and the transmitting power.

Input	Connectors according to IEC, EIA or DIN.
Max. power	According to customer's requirements.
Frequency	470 – 862 MHz
VSWR	< 1.05 in the operating channels after tuning, on steel carrier: < 1.15 in band, in GRP cylinder: < 1.2 in band.
Impedance	50 Ω
Polarization	Horizontal with dipole panels K 72 30 4. . – K72 32 4. . or vertical with dipole panels K 73 30 4. . – K 73 32 4. .
Internal connections	Connectors according to IEC, EIA or DIN are used throughout the system, allowing easy assembly and maintenance.
Vertical radiation pattern	Null fill and beam tilt upon request.
Horizontal radiation pattern	Omnidirectional, directional or custom-designed.
Half antenna splitting	Upon request, the antenna can be divided into 2 halves (for measurement and maintenance). The 2 halves are connected by a 2-way power splitter or patch panel.
Pressurization	Splitters and connecting cables can be supplied with dry air (please specify when ordering).
Painting	If required, the antenna is painted in aviation warning colours.
Structure	2 versions are available: a) Panels mounted on hot-dip galvanized steel spine. b) Panels mounted inside self-supporting fiberglass cylinder (1.6 m)
Grounding	Via mounting parts.
Max. wind velocity	As required.

No. of bays	Panels per bay	Gain* (at mid-band)		Weight** (without mounting hardware) kg	Antenna height H / m		Windload**/ kN (v = 160 km/h)	
		dB	times		with spine	with cylinder 1.6 m	with spine	with cylinder 1.6 m
4	2	15.0	31.6	120	4.45	4.3	6.0	6.0
	3	13.6	22.9	160				
	4	11.8	15.1	210				
6	2	16.8	47.9	170	6.75	6.5	9.5	9.0
	3	15.4	34.7	240				
	4	13.6	22.9	330				
8	2	18.0	63.1	240	9.05	8.7	13.0	12.0
	3	16.6	45.7	320				
	4	14.8	30.2	420				
12	2	19.8	95.5	350	13.65	13.1	20.5	18.0
	3	18.4	69.2	490				
	4	16.6	45.7	670				
16	2	21.0	125.9	450	18.25	17.5	28.0	24.0
	3	19.6	91.2	690				
	4	17.8	60.3	890				



D = 1150 mm on steel carrier
D = 1100 mm in GRP cylinder

* Referred to $\lambda/2$ dipole. Attenuation of the internal cabling and the gain-decrease in case of null fill in the vertical radiation pattern are not considered.

Approximate values for gain decrease:

cable attenuation: 0.2 – 0.5 dB

null fill: 0.3 – 1.0 dB

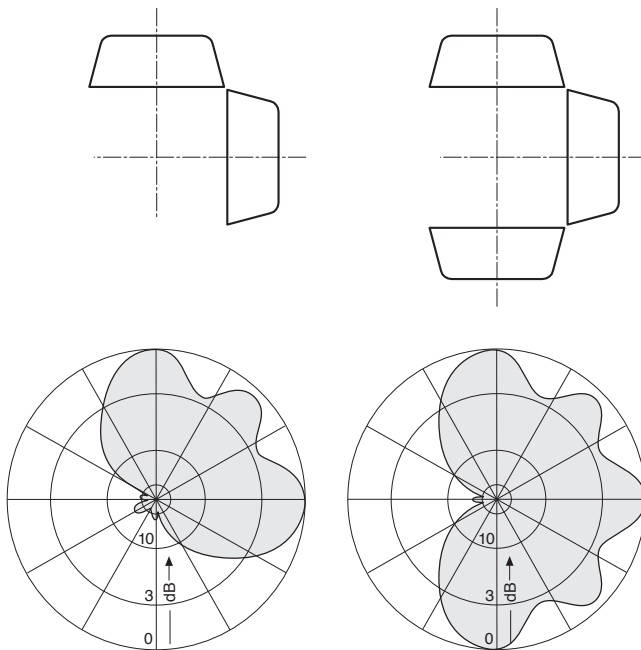
Gain figures are valid for the direction of maximum radiation (see diagrams on following page).

** Average values, depending on design and arrangement.

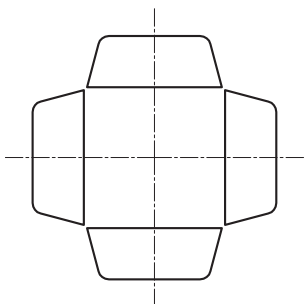
Horizontal Radiation Patterns

Examples of typical horizontal antenna arrays and their **horizontal** radiation patterns for minimal mast dimensions.

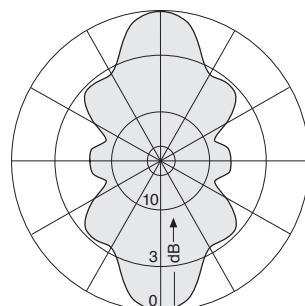
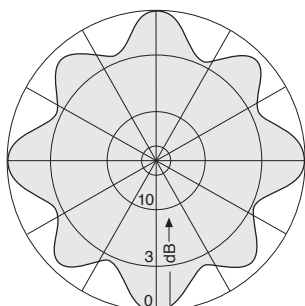
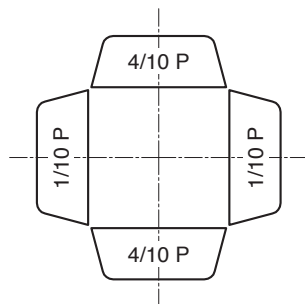
Equal power splitting



Equal power splitting



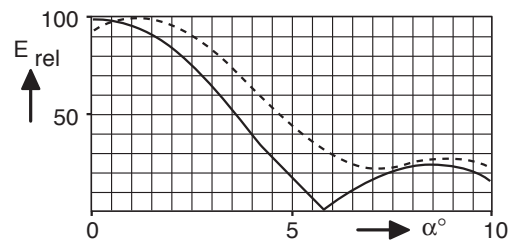
Different power splitting



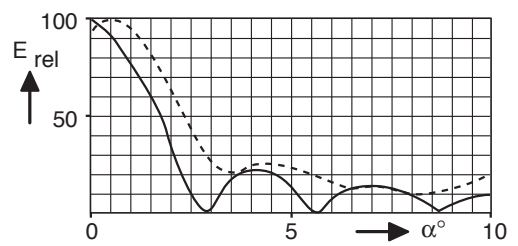
Vertical Radiation Patterns

Examples of typical **vertical** radiation patterns*) for several bays of identical, vertically stacked antenna arrays.

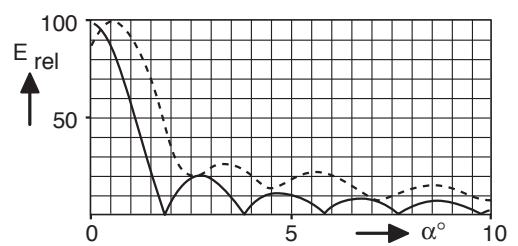
4 bays



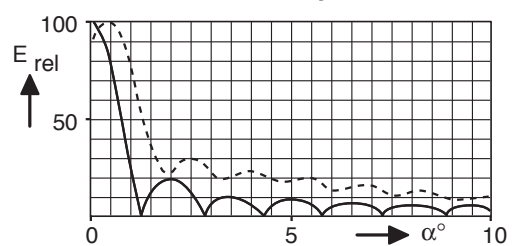
8 bays



12 bays



16 bays



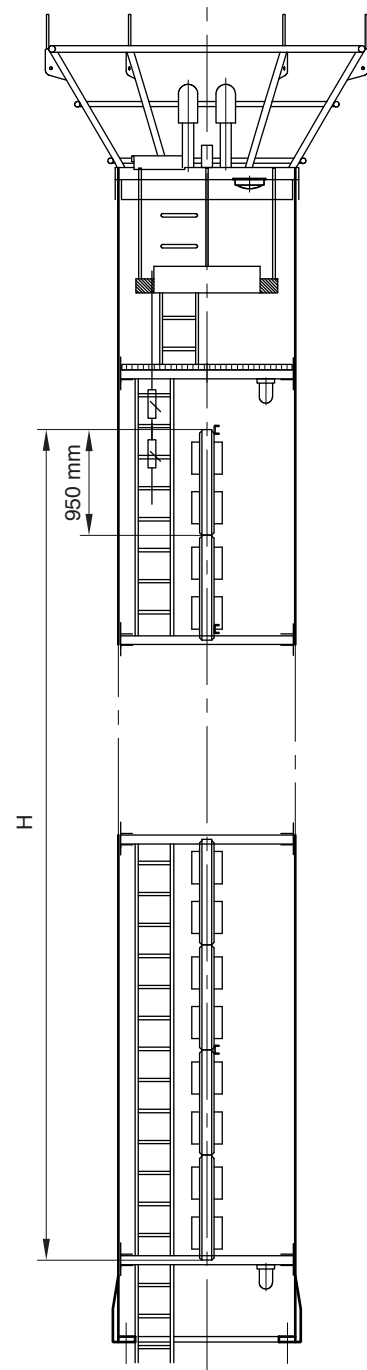
*) — without null fill
 - - - with null fill and beam tilt

UHF Transmitting Antenna 470–862 MHz

Polarization H

- Superturnstile antenna in a self-supporting fiberglass cylinder with 1.60 m diameter.

Input	Connectors according to IEC, EIA or DIN.
Max. power	According to customer's requirements, 6 kW max. per bay.
Frequency	470 – 862 MHz
VSWR	< 1.05 in operating channels after tuning < 1.15 in band.
Impedance	50 Ω
Polarization	Horizontal
Vertical radiation pattern	Null fill and beam tilt upon request.
Horizontal radiation pattern	Omnidirectional, circularity < ±1.5 dB
Half antenna splitting	Upon request, the antenna can be divided into 2 halves (for measurement and maintenance). The 2 halves are connected by a 2-way power splitter or patch panel.
Internal connections	The radiating elements are fed with coaxial connecting cables and hybrid couplers. Connectors according to IEC, EIA or DIN are used throughout the system, allowing easy assembly and maintenance.
Structure	Superturnstile antenna in self-supporting fiberglass-cylinder. Up to 16 bays may be stacked.
Mounting	On top of existing structure by means of a flange.
Ice protection	Fiberglass-cylinder (= supporting structure)
Grounding	Via mounting parts resp. via 4 grounding ropes at the exterior cylinder-surface.



No. of bays	Gain*		Weight** (with cylinder) kg	Antenna height H m	Windload** (v = 160 km/h) kN
	dB	times			
2	7.7	5.9	350	1.9	2.5
4	10.7	11.8	700	3.8	5.0
8	13.7	23.4	1400	7.6	10.0
12	15.5	35.5	2200	11.4	15.0
16	16.7	46.8	3050	15.2	20.0

* Referred to $\lambda/2$ dipole. Attenuation of the internal cabling and the gain-decrease in case of null fill in the vertical radiation pattern are not considered.

Approximate values for gain decrease:

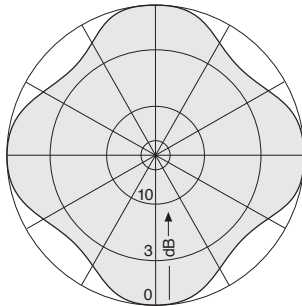
cable attenuation: 0.2 – 0.5 dB

null fill: 0.3 – 1.0 dB

Gain figures are valid for the direction of maximum radiation (see diagrams on following page).

** Average values, depending on design and arrangement.

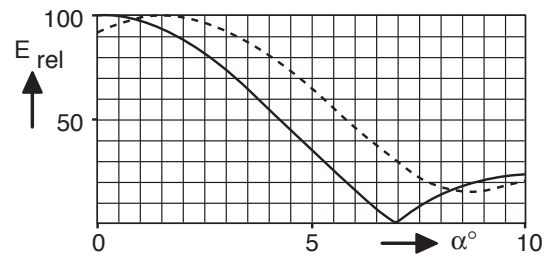
Typical Horizontal Radiation Pattern
 (at mid-band)



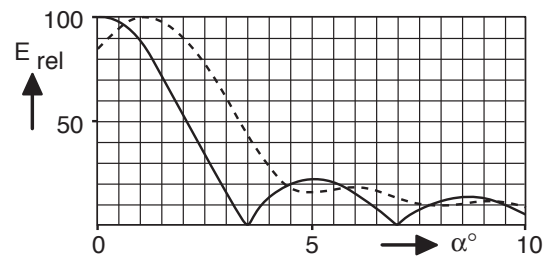
Vertical Radiation Patterns

Examples of typical **vertical** radiation patterns*) for several bays of identical, vertically stacked antenna arrays.

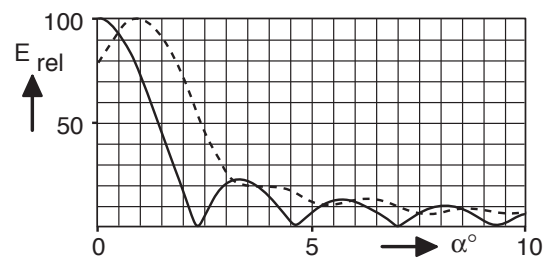
4 bays



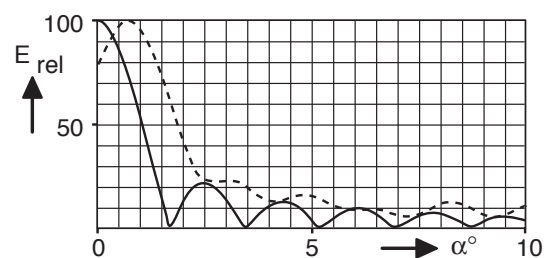
8 bays



12 bays



16 bays



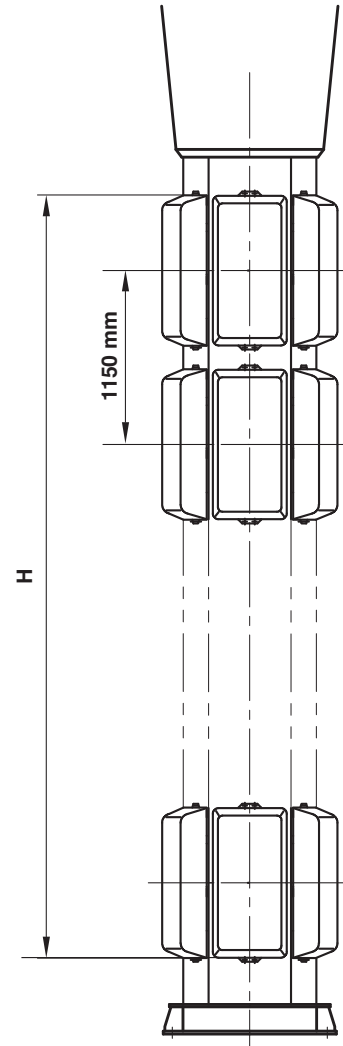
*) — without null fill
 - - - with null fill and beam tilt

UHF Transmitting Antenna 470–806 MHz

Polarization H

- Antenna systems consisting of special dipole panels mounted on a pentagonal steel spine.
- The feeder network is made up of coaxial power splitters and flexible connecting cables in accordance with the radiation patterns specification and the transmitting power.

Input	Connectors according to IEC, EIA or DIN.
Max. power	According to customer's requirements.
Frequency	470 – 806 MHz
VSWR	< 1.15 in band
Impedance	50 Ω
Polarization	Horizontal
Internal connections	Connectors according to IEC, EIA or DIN are used throughout the system, allowing easy assembly and maintenance.
Vertical radiation pattern	Null fill and beam tilt upon request.
Horizontal radiation pattern	Omnidirectional, circularity < ±1.5 dB.
Half antenna splitting	Upon request, the antenna can be divided into 2 halves (for measurement and maintenance). The 2 halves are connected by a 2-way power splitter or patch panel.
Pressurization	Splitters and connecting cables can be supplied with dry air (please specify when ordering).
Painting	If required, the antenna is painted in aviation warning colours.
Structure	Panels mounted on hot-dip galvanized steel spine.
Grounding	Via mounting parts.
Max. wind velocity	As required.



No. of bays	Panels per bay	Gain*		Weight** (without mounting hardware) kg	Antenna height H m	Windload** (v = 160 km/h) kN
		(at mid-band) dB	times			
4	5	11.7	14.8	1600	4.45	7.5
6	5	13.5	22.4	2100	6.75	11.0
8	5	14.8	30.2	3000	9.05	15.0
12	5	16.5	44.7	4300	13.65	22.0
16	5	17.8	60.3	5900	18.25	29.0

* Referred to $\lambda/2$ dipole. Attenuation of the internal cabling and the gain-decrease in case of null fill in the vertical radiation pattern are not considered.

Approximate values for gain decrease:

cable attenuation: 0.2 – 0.5 dB

null fill: 0.3 – 1.0 dB

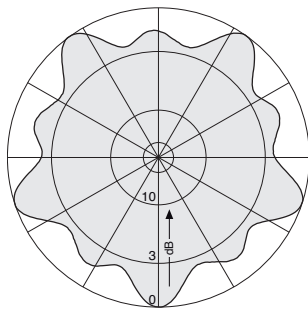
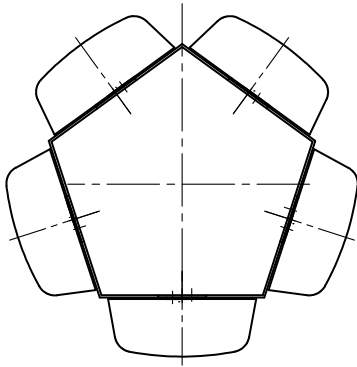
Gain figures are valid for the direction of maximum radiation (see diagrams on following page).

** Average values, depending on design and arrangement.

Horizontal Radiation Patterns

Examples of typical horizontal antenna arrays and their **horizontal** radiation patterns.

Omnidirectional patterns

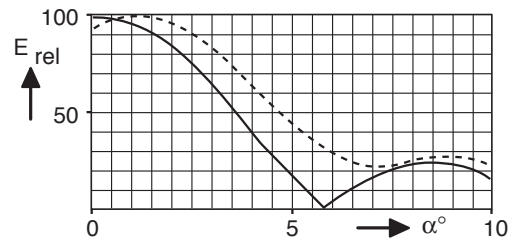


Directional patterns on request!

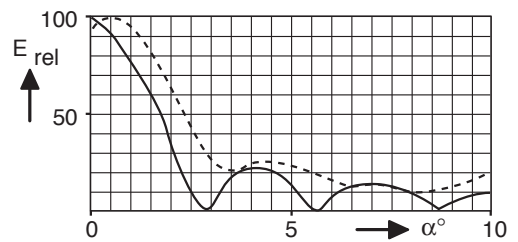
Vertical Radiation Patterns

Examples of typical **vertical** radiation patterns*) for several bays of identical, vertically stacked antenna arrays.

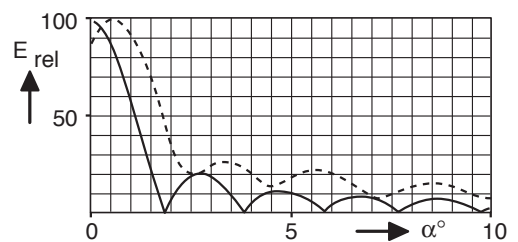
4 bays



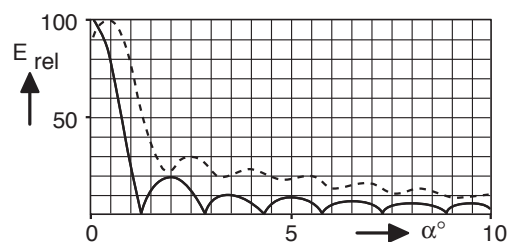
8 bays



12 bays



16 bays



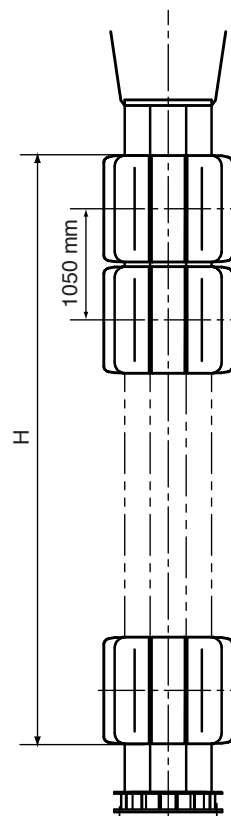
*) — without null fill
 - - - with null fill and beam tilt

UHF Transmitting Antenna 470–862 MHz

Polarization V

- Antenna systems consisting of special dipole panels mounted on an orthogonal steel spine.
- The feeder network is made up of coaxial power splitters and flexible connecting cables in accordance with the radiation patterns specification and the transmitting power.

Input	Connectors according to IEC, EIA or DIN.
Max. power	According to customer's requirements.
Frequency	470 – 862 MHz
VSWR	< 1.2 in band
Impedance	50 Ω
Polarization	Vertical
Internal connections	Connectors according to IEC, EIA or DIN are used throughout the system, allowing easy assembly and maintenance.
Vertical radiation pattern	Null fill and beam tilt upon request.
Horizontal radiation pattern	Omnidirectional, circularity < ±1 dB (directional or custom-designed on request).
Half antenna splitting	Upon request, the antenna can be divided into 2 halves (for measurement and maintenance). The 2 halves are connected by a 2-way power splitter or patch panel.
Pressurization	Splitters and connecting cables can be supplied with dry air (please specify when ordering).
Painting	If required, the antenna is painted in aviation warning colours.
Structure	2 versions are available: a) Panels mounted on hot-dip galvanized steel spine. b) Panels mounted inside self-supporting fiberglass cylinder (1.6 m)
Grounding	Via mounting parts.
Max. wind velocity	As required.



No. of bays	Panels per bay	Gain* (at mid-band)		Weight**		Antenna height H / m		Windload**/ kN (v = 160 km/h)	
		dB	times	with spine	with cylinder 1.6 m	with spine	with cylinder 1.6 m	with spine	with cylinder 1.6 m
4	8	10.3	10.7	1500	1100	4.15	3.72	7.5	6.0
6	8	12.1	16.2	2100	1650	6.25	5.62	11.0	9.0
8	8	13.3	21.4	3100	2200	8.35	7.52	15.0	12.0
12	8	15.1	32.4	4400	3300	12.55	11.32	22.0	18.0
16	8	16.3	42.7	5800	4400	16.75	15.12	29.0	24.0

* Referred to $\lambda/2$ dipole. Attenuation of the internal cabling and the gain-decrease in case of null fill in the vertical radiation pattern are not considered.

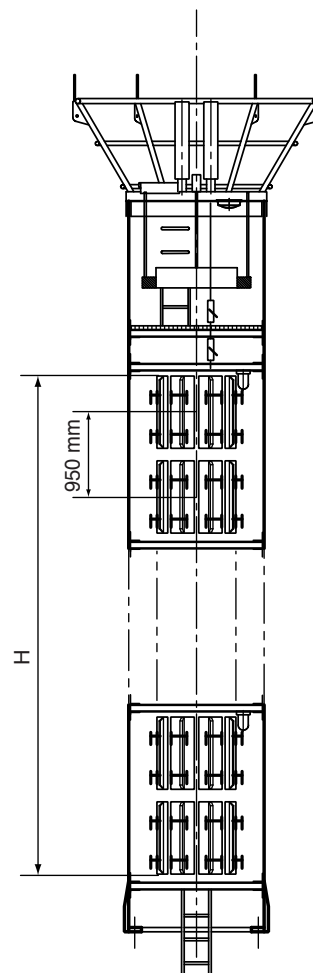
Approximate values for gain decrease:

cable attenuation: 0.2 – 0.5 dB

null fill: 0.3 – 1.0 dB

Gain figures are valid for the direction of maximum radiation (see diagrams on following page).

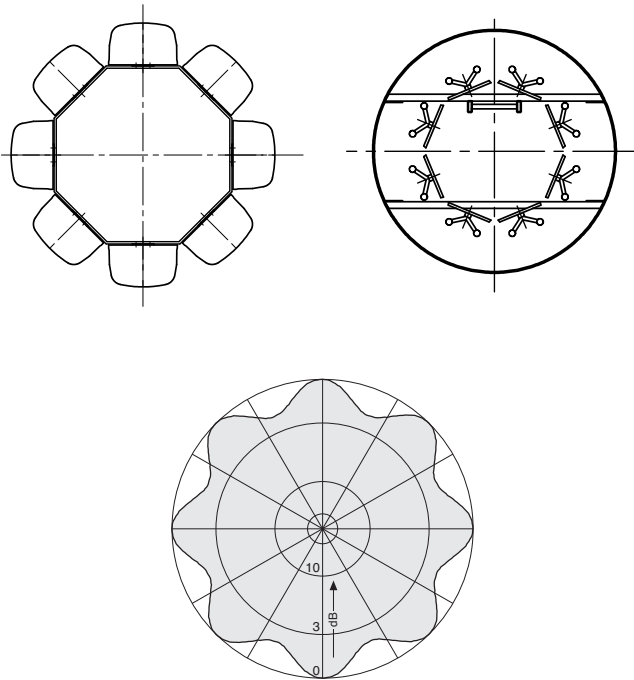
** Average values, depending on design and arrangement.



Horizontal Radiation Patterns

Examples of typical horizontal antenna arrays and their **horizontal** radiation patterns.

Omnidirectional patterns

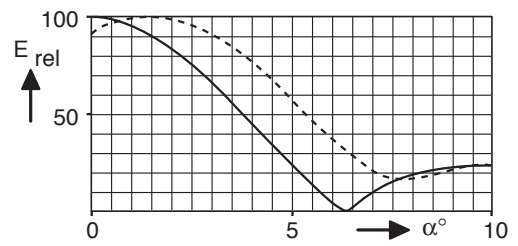


Directional patterns on request!

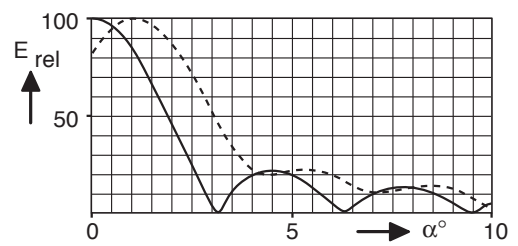
Vertical Radiation Patterns

Examples of typical **vertical** radiation patterns*) for several bays of identical, vertically stacked antenna arrays.

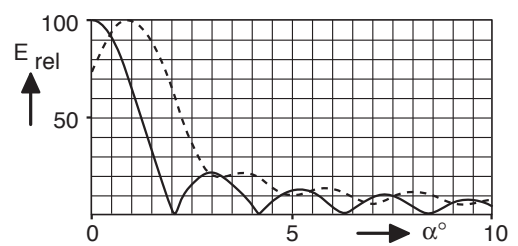
4 bays



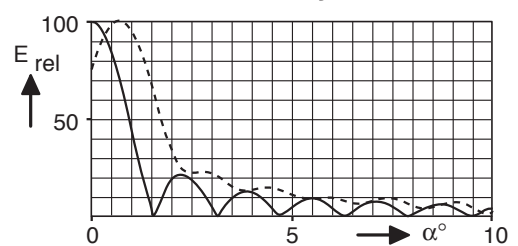
8 bays



12 bays



16 bays



*) — without null fill
 - - - with null fill and beam tilt

Antennas for TV in UHF Band 470 – 862 MHz

UHF Panel Polarization

470–862 MHz

H

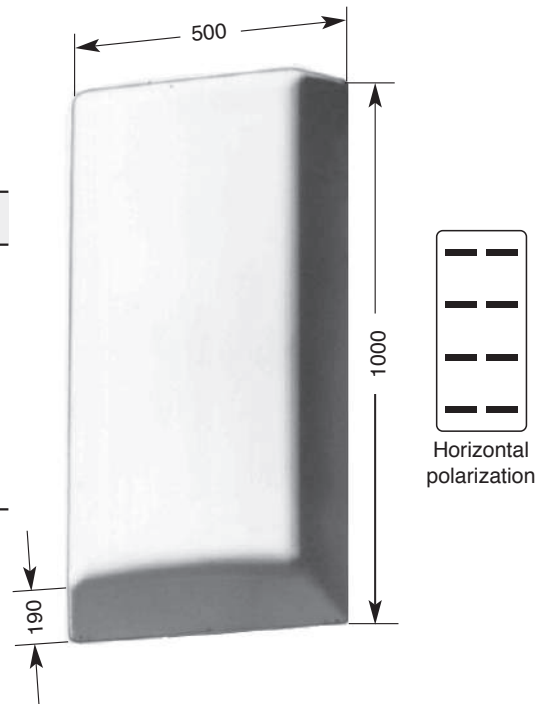
KATHREIN
Antennen · Electronic

- Designed for open steel spines
- Suitable for transposers

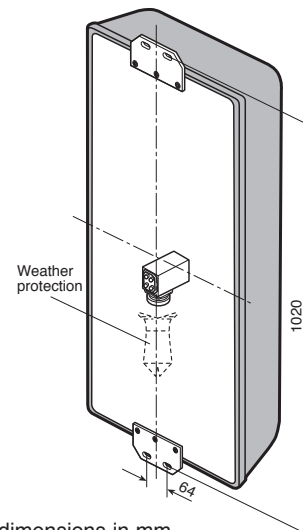
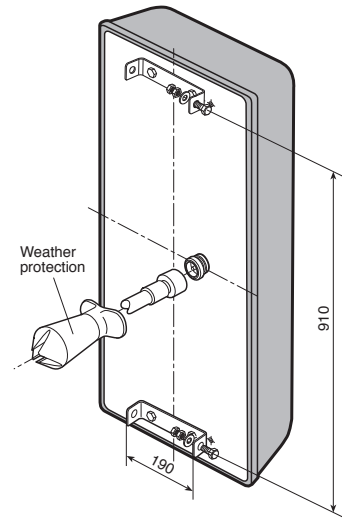
Specifications

Frequency	470 – 862 MHz
VSWR	$s < 1.1$
Gain (at mid-band)	11 dBd
Polarization	Horizontal
Weight	12 kg
Wind load (at 160 km/h)	Frontal: 565 N Rearside: 815 N Lateral: 250 N
Max. wind velocity	225 km/h

Material:	Reflector screen and dipoles: Weather-resistant aluminum. Protective cover: Fiberglass. Attachment elbow: Hot-dip galvanized steel.
Mounting: (please order separately)	E.g. by using clamps K 61 14 0... to tubular masts of 40 – 521 mm diameter. Further attachment parts and mounting dimensions upon request.
Grounding:	Via mounting parts.
Scope of supply:	Directional antenna with one weather protection unit each for straight connectors and elbow connectors.
Ice protection:	The dipoles remain fully functioning even in icy conditions as the fiberglass cover protects the whole antenna and also the antenna is of a very robust design.
Combinations:	The antenna is particularly suitable for use in combinations in order to achieve various radiation patterns.

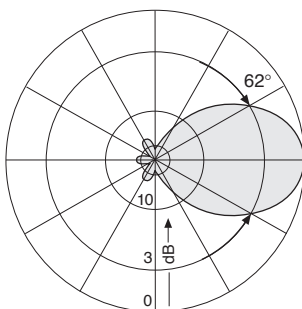


Examples with different connectors and mounting possibilities:

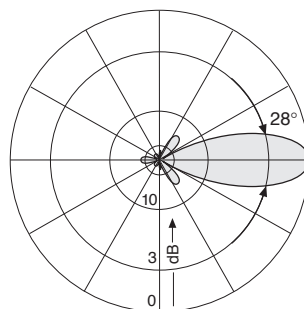


All dimensions in mm

Radiation Patterns (at mid-band)



Horizontal Pattern




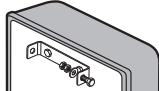

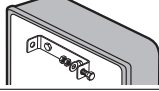

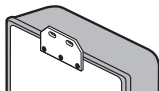

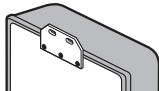

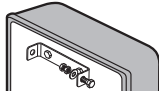

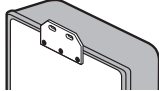

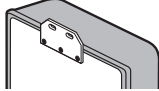

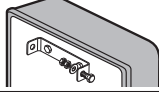

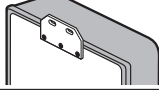

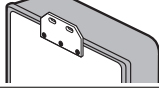
Vertical Pattern

UHF Panel Polarization

470–862 MHz

H

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Order No.	Polarization	Max. power	Connector	Connector shape	Mounting bracket	Color
601 417 <i>(K 72 31 47)</i>	H	1 kW	7-16 female			Traffic white RAL 9016
601 966	H	1 kW	7-16 female			Traffic orange RAL 2009
774 040	H	1 kW	7-16 female			Traffic white RAL 9016
774 041	H	1 kW	7-16 female			Traffic orange RAL 2009
774 052	H	1 kW	7-16 female			Traffic white RAL 9016
774 038	H	1.5 kW	7/8" EIA flange			Traffic white RAL 9016
774 039	H	1.5 kW	7/8" EIA flange			Traffic orange RAL 2009
715 022	H	2 kW	13-30 female			Traffic white RAL 9016
774 046	H	2 kW	13-30 female			Traffic white RAL 9016
774 047	H	2 kW	13-30 female			Traffic orange RAL 2009

UHF Panel Polarization

470–862 MHz

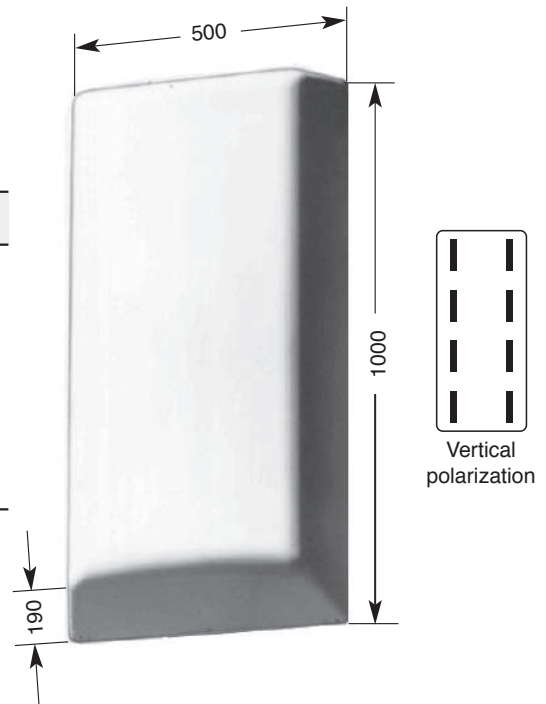
V

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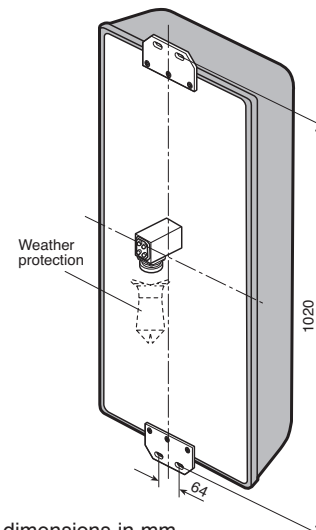
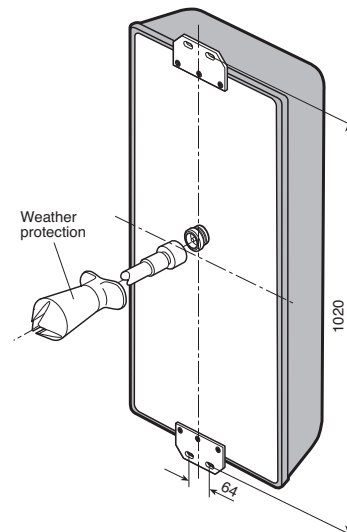
- Designed for open steel spines
- Suitable for transposers

Specifications	
Frequency range	470 – 862 MHz
VSWR	$s < 1.12$
Gain (at mid-band)	11 dBd
Polarization	Vertical
Weight	12 kg
Wind load (at 160 km/h)	Frontal: 565 N Rearside: 815 N Lateral: 250 N
Max. wind velocity	225 km/h

- Material:** Reflector screen and dipoles: Weather-resistant aluminum. Protective cover: Fiberglass. Attachment elbow: Hot-dip galvanized steel.
- Mounting:** (please order separately) E.g. by using clamps K 61 14 0... to tubular masts of 40 – 521 mm diameter. Further attachment parts and mounting dimensions upon request.
- Grounding:** Via mounting parts.
- Scope of supply:** Directional antenna with one weather protection unit each for straight connectors and elbow connectors.
- Ice protection:** The dipoles remain fully functioning even in icy conditions as the fiberglass cover protects the whole antenna and also the antenna is of a very robust design.
- Combinations:** The antenna is particularly suitable for use in combinations in order to achieve various radiation patterns.

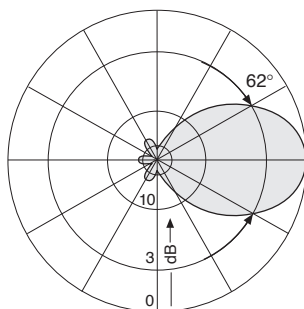


Examples with different connectors and mounting possibilities:

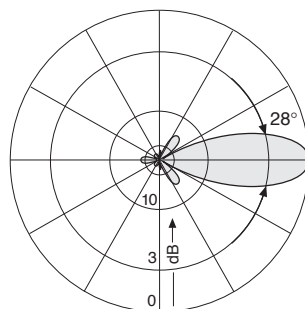


All dimensions in mm

Radiation Patterns (at mid-band)



Horizontal Pattern



Vertical Pattern

UHF Panel Polarization

470–862 MHz

V

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Order No.	Polarization	Max. power	Connector	Connector shape	Mounting bracket	Color
601 709 <i>(K 73 31 47)</i>	V	1 kW	7-16 female			Traffic white RAL 9016
602 371	V	1 kW	7-16 female			Traffic orange RAL 2009
769 731	V	1 kW	7-16 female			Traffic white RAL 9016
776 165	V	1 kW	7-16 female			Traffic white RAL 9016
776 166	V	1 kW	7-16 female			Traffic orange RAL 2009
750 10082	V	1.5 kW	7/8" EIA flange			Traffic white RAL 9016
750 10083	V	1.5 kW	7/8" EIA flange			Traffic orange RAL 2009
776 202	V	1.5 kW	7/8" EIA flange			Traffic white RAL 9016
776 203	V	1.5 kW	7/8" EIA flange			Traffic orange RAL 2009
776 167	V	2 kW	13-30 female			Traffic white RAL 9016
776 168	V	2 kW	13-30 female			Traffic orange RAL 2009

UHF Panel Polarization

470–862 MHz

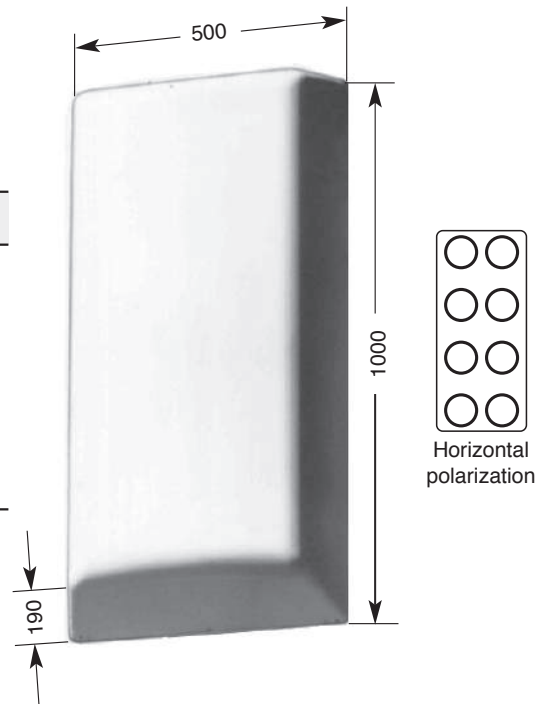
H

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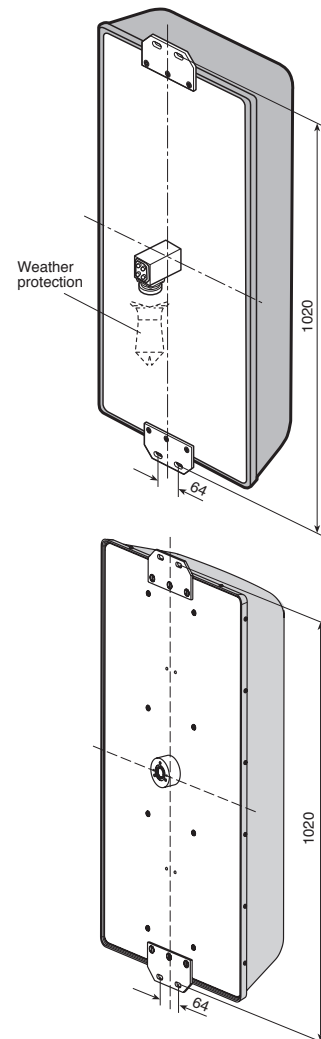
- Especially designed for square steel spines

Specifications	
Frequency range	470 – 862 MHz
VSWR	$s < 1.1$
Gain (at mid-band)	11 dBd
Polarization	Horizontal
Weight	10 kg
Wind load (at 160 km/h)	Frontal: 565 N Rearside: 815 N Lateral: 250 N
Max. wind velocity	225 km/h

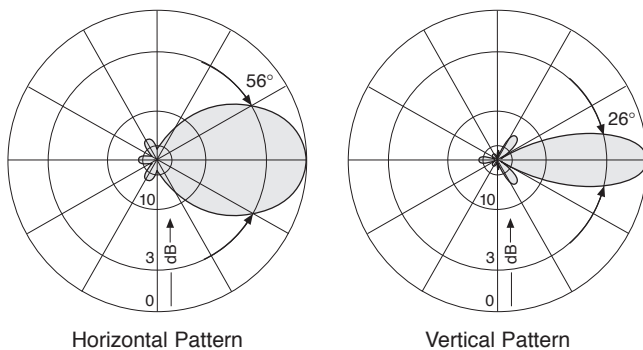
- Material:** Reflector screen and dipoles: Weather-resistant aluminum. Protective cover: Fiberglass. Attachment elbow: Hot-dip galvanized steel.
- Mounting:** (please order separately) E.g. by using clamps K 61 14 0... to tubular masts of 40 – 521 mm diameter. Further attachment parts and mounting dimensions upon request.
- Grounding:** Via mounting parts.
- Scope of supply:** Directional antenna with one weather protection unit each for straight connectors and elbow connectors.
- Ice protection:** The dipoles remain fully functioning even in icy conditions as the fiberglass cover protects the whole antenna and also the antenna is of a very robust design.
- Combinations:** The antenna is particularly suitable for use in combinations in order to achieve various radiation patterns.



Examples with different connectors and mounting possibilities:



Radiation Patterns (at mid-band)



All dimensions in mm

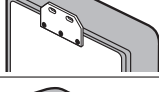

UHF Panel Polarization

470–862 MHz

H

KATHREIN

Antennen · Electronic

Order No.	Polarization	Max. power	Connector	Connector shape	Mounting bracket	Color
772 549	H	1 kW	7-16 female			Traffic white RAL 9016
772 550	H	1 kW	7-16 female			Traffic orange RAL 2009
750 10315	H	1 kW	7-16 female			Traffic red RAL 3020
750 10175	H	1 kW	7-16 female			Stone grey RAL 7030
750 10012	H	1.5 kW	7/8" EIA flange			Traffic white RAL 9016
750 10013	H	1.5 kW	7/8" EIA flange			Traffic orange RAL 2009
750 10031	H	1.5 kW	7/8" EIA flange			Traffic white RAL 9016
750 10032	H	1.5 kW	7/8" EIA flange			Traffic orange RAL 2009
773 000	H	2 kW	13-30 female			Traffic white RAL 9016
772 999	H	2 kW	13-30 female			Traffic orange RAL 2009
750 10016	H	3 kW	1 5/8" EIA flange			Traffic white RAL 9016
750 10017	H	3 kW	1 5/8" EIA flange			Traffic orange RAL 2009
773 333	H	3 kW	1 5/8" EIA flange			Traffic white RAL 9016
773 332	H	3 kW	1 5/8" EIA flange			Traffic orange RAL 2009

Antennas
470 – 862 MHz