

8-Port Antenna	R1	B1	B2	Y1
Frequency Range	790–960	1710–1880	1920–2170	2490–2690
Dual Polarization	X	X	X	X
HPBW	65°	65°	65°	65°
Adjust. Electr. DT	0°–10°	2°–8°	2°–8°	2°–8°

set by hand or by optional RCU (Remote Control Unit)

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**8-Port Antenna 790–960/1710–1880/1920–2170/2490–2690 65°/65°/65°/65°
16/17.5/18/18dBi 0°–10°/2°–8°/2°–8°/2°–8°T**

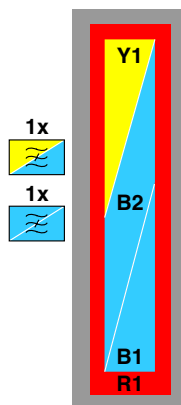
Type No.		80010685v01			
Lowband		R1, connector 1–2			
		790–960			
Frequency range	MHz	790 – 862	824 – 894	880 – 960	
Polarization	°	+45, –45	+45, –45	+45, –45	
Average gain	dBi	15.9 ... 15.9 ... 15.6	16.0 ... 16.0 ... 15.7	16.0 ... 16.1 ... 15.8	
Tilt	°	0 ... 5 ... 10	0 ... 5 ... 10	0 ... 5 ... 10	
Horizontal Pattern:					
Half-power beam width	°	67	66	65	
Front-to-back ratio, copolar (180°±30°)	dB	> 27	> 27	> 27	
Cross polar ratio	0° Maindirection Sector ±60°	Typically: 27	Typically: 27	Typically: 22	
Sector		> 10	> 10	> 10	
Vertical Pattern:					
Half-power beam width	°	10.1°	9.9°	9.5°	
Electrical tilt	°	0–10, continuously adjustable			
Sidelobe suppression	° T	0 ... 5 ... 10	0 ... 5 ... 10	0 ... 5 ... 10	
– for first sidelobe above main beam	dB	17 ... 15 ... 15	18 ... 15 ... 16	18 ... 16 ... 15	
– within 0°–20° sector above horizon	dB	17 ... 15 ... 15	18 ... 15 ... 15	18 ... 15 ... 15	
Impedance	Ω	50			
VSWR		< 1.5			
Isolation: Intrasystem	dB	> 30			
Isolation: Intersystem	dB	> 32 (1710–1880 // 1920–2170 MHz)			
		> 32 (790–960 // 1710–2170 MHz)			
		> 32 (2490–2690 // 790–960 ... 1710–2170 MHz)			
Intermodulation IM3	dBc	< –150 (2 x 43 dBm carrier)			
Max. effective power per port	W	400 (at 50 °C ambient temperature)			
Max. effective power Port 1–2		800 (at 50 °C ambient temperature)			
Max. effective power for the antenna		900 (at 50 °C ambient temperature)			



8-Port Antenna

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Highbands		B1, connector 3–4	B2, connector 5–6	Y1, connector 7–8
		1710–1880	1920–2170	2490–2690
Frequency range	MHz	1710 – 1880	1920 – 2170	2490 – 2690
Polarization	°	+45, –45	+45, –45	+45, –45
Average gain)	dBi	17.5 ... 17.6 ... 17.4	17.8 ... 18.0 ... 17.5	17.5 ... 18.0 ... 17.8
Tilt	°	2 ... 4 ... 8	2 ... 4 ... 8	2 ... 4 ... 8
Horizontal Pattern:				
Half-power beam width	°	62	63	63
Front-to-back ratio, copolar (180°±30°)	dB	> 25	> 27	> 26
Cross polar ratio	0°	Typically: 18	Typically: 23	Typically: 24
Maindirection	±60°	> 10	> 10	> 10
Sector				
Vertical Pattern:				
Half-power beam width	°	4.9	4.3	3.5
Electrical tilt	°	2–8, continuously adjustable	2–8, continuously adjustable	2–8, continuously adjustable
Sidelobe suppression	° T	2 ... 4 ... 8	2 ... 4 ... 8	2 ... 4 ... 8
– for first sidelobe above main beam	dB	15 ... 17 ... 18	15 ... 17 ... 18	15 ... 17 ... 18
– within 0°–20° sector above horizon	dB	15 ... 16 ... 16	15 ... 17 ... 16	15 ... 17 ... 15
Impedance	Ω	50	50	50
VSWR		< 1.5	< 1.5	< 1.5
Isolation: Intrasystem	dB	> 28 dB	> 28 dB	> 28 dB
Isolation: Intersystem	dB	> 32 (1710–1880 // 1920–2170 MHz) > 32 (790–960 // 1710–2170 MHz) > 32 (2490–2690 // 790–960 ... 1710–2170 MHz)		
Intermodulation IM3	dBc	< –150 (2 x 43 dBm carrier)		
Max. effective power per port	W	150 (at 50 °C ambient temperature)		
Max. effective power Port 1–2		400 (at 50 °C ambient temperature)		
Max. effective power for the antenna		900 (at 50 °C ambient temperature)		



Correlation Table

Frequency range	Array	Connector
790– 960 MHz	R1	1–2
1710–1880 MHz	B1	3–4
1920–2170 MHz	B2	5–6
2490–2690 MHz	Y1	7–8

Mechanical specifications			
Input	8 x 7-16 female (long neck)		
Connector position	Bottom		
Adjustment mechanism	4x, Position bottom continuously adjustable		
Wind load (at Rated Wind Speed: 150 km/h)	N lbf	Frontal: 390 88	Maximal: 620 139
Max. wind velocity	km/h mph	200	124
Height/width/depth	mm inches	1997 / 300 / 152	78.6 / 11.8 / 6
Category of mounting hardware	M (Medium)		
Weight	kg lb	29 / 31 (clamps incl.)	63.9 / 68.3 (clamps incl.)
Packing size	mm inches	2316 x 322 x 190	91.2 x 12.7 x 7.5
Scope of supply	Panel and 2 units of clamps for 42–115 mm 1.7–4.5 inches diameter		

936.4831/b Subject to alteration.

Accessories General Information

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Accessories (order separately if required)

Type No.	Description	Remarks mm inches	Weight approx. kg lb	Units per antenna
85010002	1 clamp	Mast diameter: 110 – 220 4.3 – 8.7	2.7 6.0	2
85010003	1 clamp	Mast diameter: 210 – 380 8.3 – 15.0	4.8 10.6	2
737978	1 downtilt kit	Downtilt angle: 0° – 10°	2.3 5.1	1

Accessories (included in the scope of supply)

738546	1 clamp	Mast diameter: 42 – 115 1.7 – 4.5	1.1 2.4	2
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For downtilt mounting use the clamps for an appropriate mast diameter together with the downtilt kit.
Wall mounting: No additional mounting kit needed.

Material:

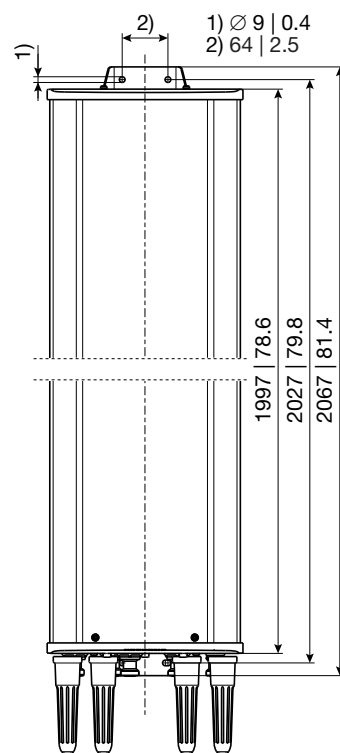
Reflector screen: Aluminum.

Fiberglass housing: It covers totally the internal antenna components. The special design reduces the sealing areas to a minimum and guarantees the best weather protection. Fiberglass material guarantees optimum performance with regards to stability, stiffness, UV resistance and painting. The color of the radome is light grey.

All nuts and bolts: Stainless steel or hot-dip galvanized steel.

Grounding:

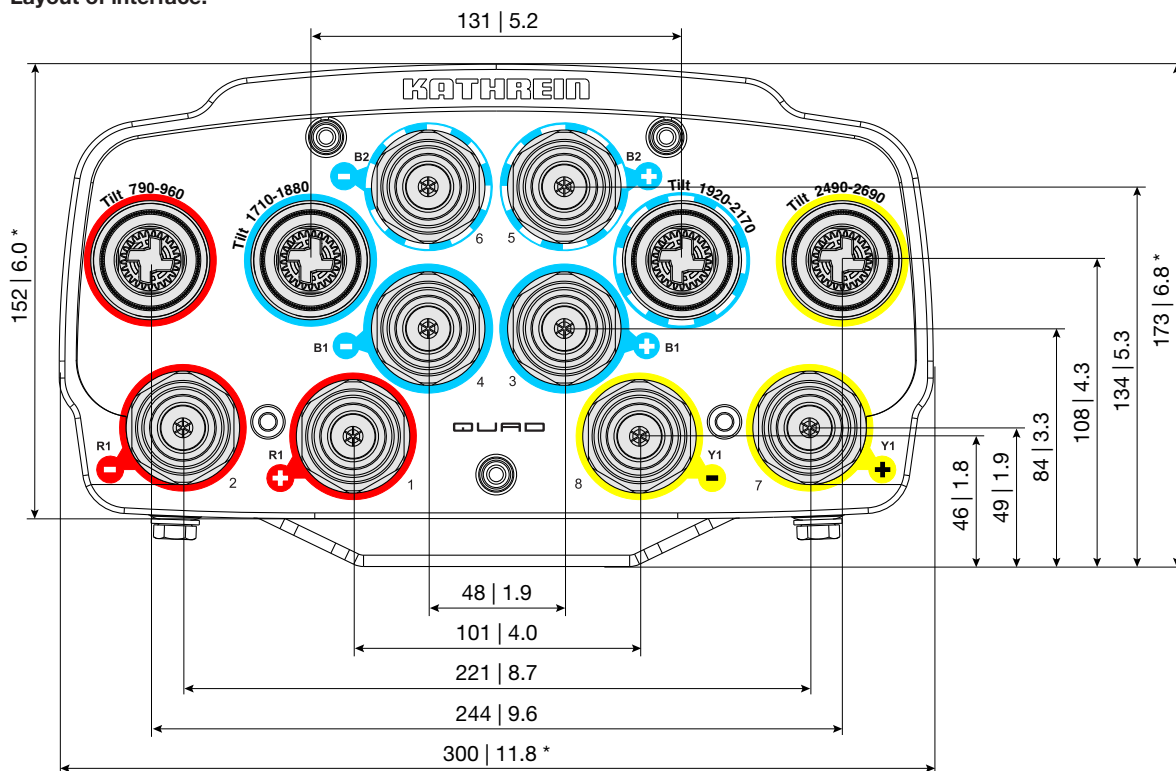
The metal parts of the antenna including the mounting kit and the inner conductors are DC grounded.



Adjustment mechanism
with integrated scale

All dimensions in
mm | inches

Layout of interface:



Bottom view

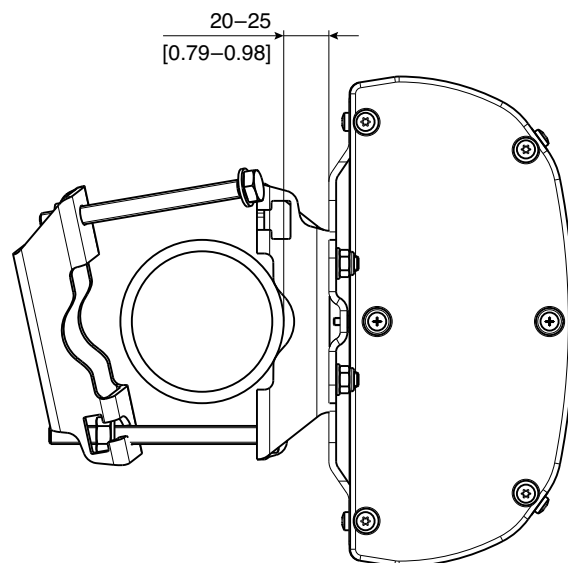
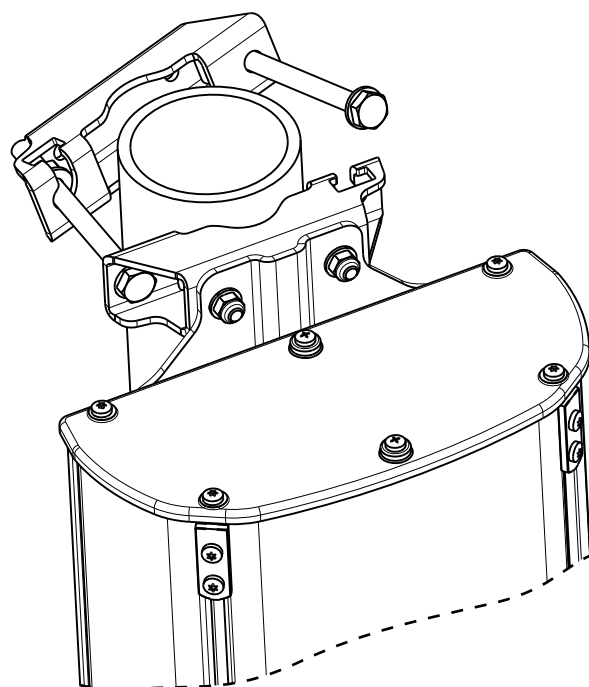
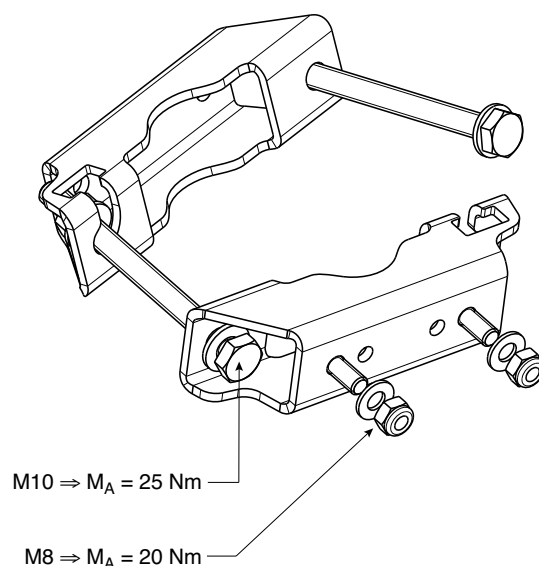
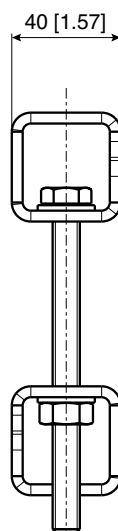
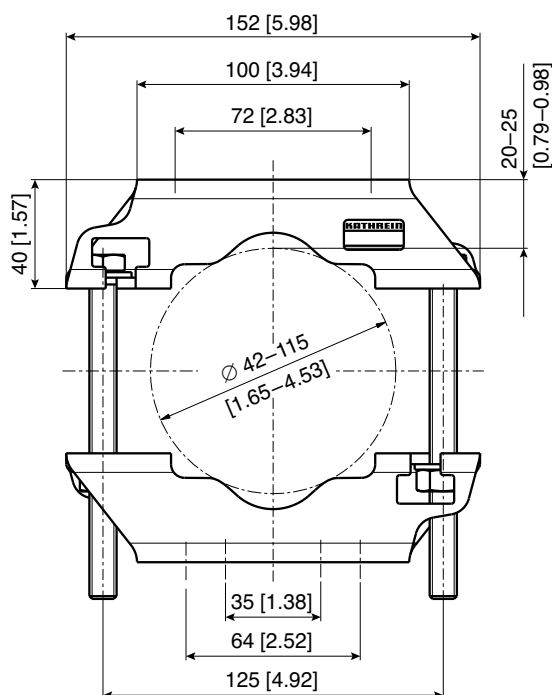
* Dimensions refer to radome
All dimensions in mm | inches

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Mounting Hardware Clamp Included in the Scope of Supply

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Suitable for mast diameter	(mm) [inches]	42 – 115 [1.65 – 4.53]
Antenna – mast distance	(mm) [inches]	20 – 25 [0.79 – 0.98]
Material of clamp and screws		Hot-dip galvanized steel / stainless steel
Weight	(kg) [lb]	1.1 [2.43]



936.3920/c Subject to alteration.

**Please note: Kathrein does not recommend to use counter nuts.
The additional nuts supplied are only meant as spares.**

All dimensions in mm and [inches]

General Instructions for Adjustment Mechanism

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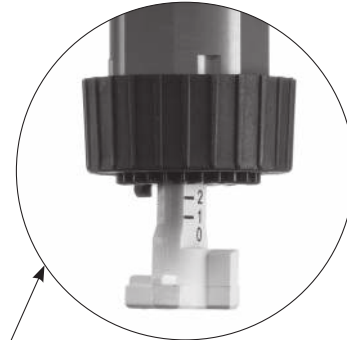
Description of the adjustment mechanism (protective cap removed):



- ① Adjustment wheel with twist-lock function.
- ② Downtilt spindle with integrated scale.



- ① Thread for fixing the protective cap or the RCU (Remote Control Unit).
- ② Gearwheel for RCU power drive.

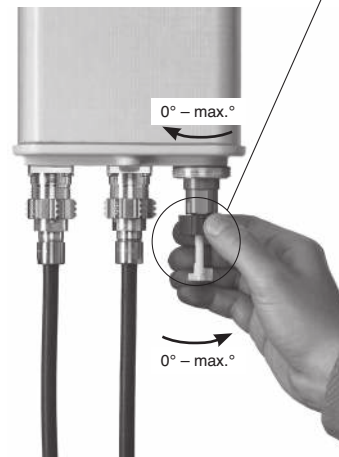


To set the downtilt angle exactly, you must look horizontally at the scale. The lower edge of the gear-wheel must be used for alignment.

Manual adjustment procedure:



Remove the protective cap.

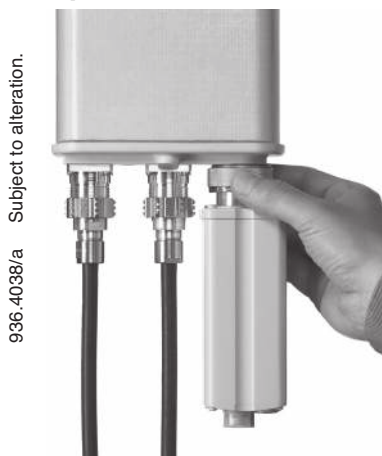


Set downtilt angle by rotating the adjustment wheel.



Screw on the protective cap again.

Optional: RCU (Remote Control Unit) for remote-controlled downtilt adjustment:



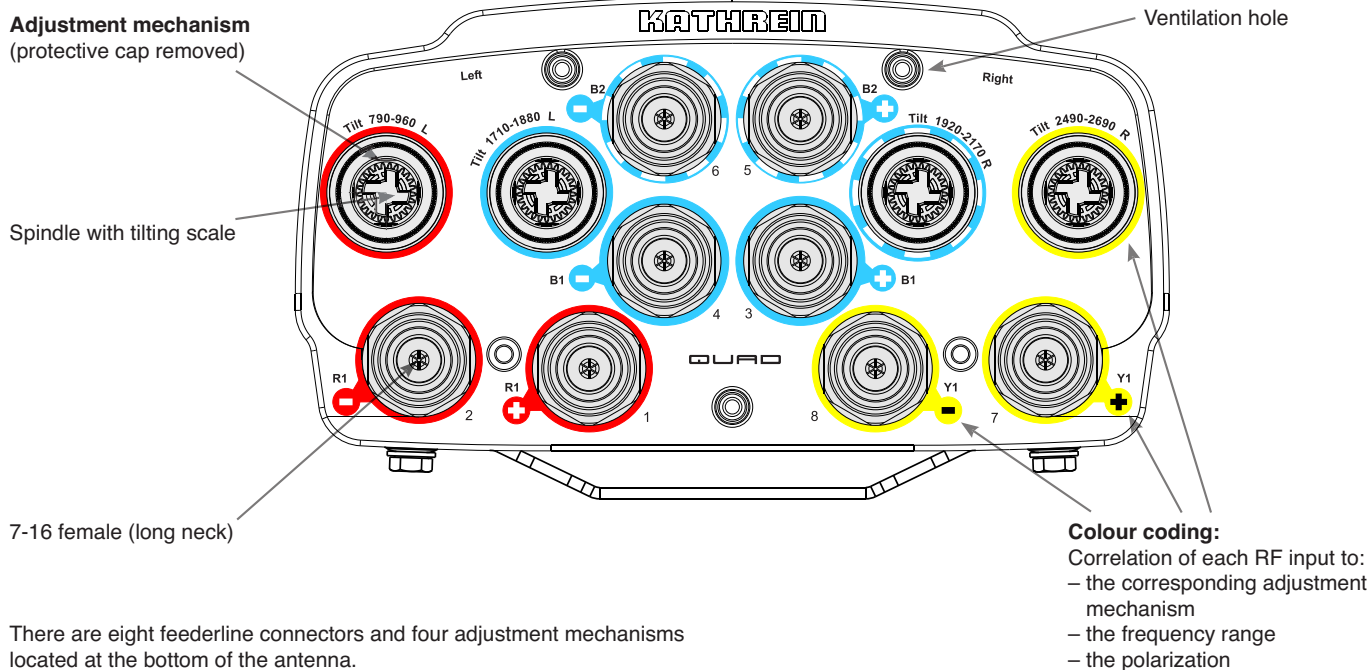
For a description of RCU installation please refer to the respective data sheet.

General Instructions for Feederline Installation for Triple- and Quad-band Antennas

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Please note: To avoid any damage to the interfaces, please ensure that only suitable tools are used. To tighten the feederline connector interfaces, we strongly recommend using a special Kathrein installation tool (as shown below) in combination with a standard torque-wrench.

Description of bottom end cap (exemplary picture):



Installation of the feederline connector and RCU (optional):

In order to protect the adjustment mechanism the protective caps have to be attached during feederline installation!



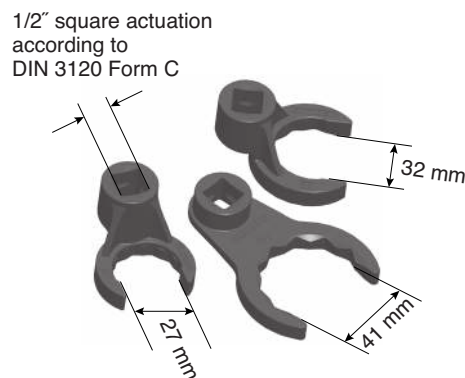
For the feederline installation carefully put the connector in place and hand-screw the nut.

Use a torque-wrench to finish installation.

After feederline installation, the optional remote control units (RCU) R1, B1 and Y1 can be mounted if required. For a full description of RCU installation please refer to the respective data sheet.

Kathrein installation set: Type No. 85010077 Set has to be ordered separately!

Set consists of three spanners of 27, 32 and 41 mm width.



These tools are suitable for 7-16 connectors with a wrench size of 27 or 32 mm, and the RCU attachment nut with a wrench size of 41 mm.

Tighten nuts within a torque range of 25 – 33 Nm depending on connector manufacturers' specifications, respectively the RCU nut with a torque range of 15 – 18 Nm.

General Information about Panel Antennas

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Environmental conditions:

Kathrein cellular antennas are designed to operate under the environmental conditions as described in ETS 300 019-1-4 class 4.1 E.

The antennas exceed this standard with regard to the following items:

- Low temperature: –55 °C
- High temperature (dry): +60 °C

For antennas equipped with FlexRET: The electrical downtilt adjusting is designed to operate under the environmental conditions as described in the valid data sheet of the FlexRET.

Ice protection: Due to the very sturdy antenna construction and the protection of the radiating system by the radome, the antenna remains operational even under icy conditions.

Environmental tests:

Kathrein antennas fulfil the stated specifications after completion of the environmental tests as defined in ETS 300 019-2-4. The homogenous design of Kathrein's antenna families uses identical modules and materials.

Extensive tests have been performed on typical samples and modules. The vibration test has been adapted relating to frequency and acceleration to the conditions of mast mounted antennas.

Please note:

As a result of more stringent legal regulations and judgements regarding product liability, we are obliged to point out certain risks that may arise when products are used under extraordinary operating conditions.

The mechanical design is based on the environmental conditions as stipulated in ETS 300 019-1-4. Wind loads are calculated according to DIN 1055-4.

The antennas may be used at locations where the anticipated peak wind velocity or gust wind speed lies within the maximum wind speed listed in the data sheet. We warrant the mechanical safety and electrical functionality under such conditions. The wind speeds are defined in accordance with the DIN, EN or TIA standards. This warranty makes allowance for the partial safety factors specified in those standards. Extraordinary operating conditions, such as heavy icing or exceptional dynamic stress (e.g. strain caused by oscillating support structures), may result in the breakage of an antenna or even cause it to fall to the ground. These facts must be considered during the site planning process.

The details given in our data sheets have to be followed carefully when installing the antennas and accessories.

Site planning and installation must be carried out by qualified and experienced staff. All relevant national safety regulations must be upheld and respected. Incorrect site planning, faulty installation, as well as interfering surroundings on site, may lead to deviations in the electrical parameters compared to those specified in the respective data sheets.

The connectors on this product are only suitable for connecting to the compatible counterpart. Please ensure that the connected cable has been fitted with a connector of the same standard, otherwise damage may occur.

The tilt values will be set to any arbitrary value in the given tilt range. These values are independent from the frequency band or antenna type and can vary between antennas and bands.

EU-RED

Hereby, Kathrein Werke KG declares that the radio equipment is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: <http://www.kathrein.com>



Our quality assurance system and our environmental management system apply to the entire company and are certified by TÜV according to EN ISO 9001 and EN ISO 14001.



Our products are compliant to the EU Directive RoHS as well as to other environmentally relevant regulations (e.g. REACH).