Penta-band Panel	R1	Y1	Y2	Y3	Y4
Frequency Range	698–960	1710–2690	1710–2690	1710–2690	1710–2690
Dual Polarization	X	X	X	X	X
HPBW	65°	65°	65°	65°	65°
Adjust. Electr. DT	1°–10°	2°–12°	2°–12°	2°–12°	2°–12°

set by *FlexRET*

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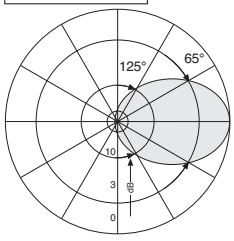
XXXXXPol Panel 698–960/1710–2690/1710–2690/1710–2690/1710–2690
65°/65°/65°/65°/65° 17/17.5/17/18/17.5dBi 1°–10°/2°–12°/2°–12°/2°–12°/2°–12°T

Type No.	80010892V01

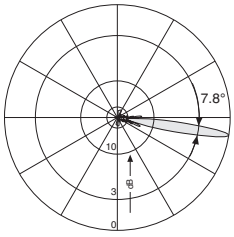
Left side, low band	R1, connector 1–2			
	698–960			
Frequency range	698 – 820 MHz	790 – 862 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Average gain (dBi) Tilt	16.3 ... 16.4 ... 16.3 1.5° ... 6° ... 10°	16.6 ... 16.8 ... 16.7 1.5° ... 6° ... 10°	16.9 ... 17.0 ... 16.9 1.5° ... 6° ... 10°	17.2 ... 17.3 ... 17.2 1.5° ... 6° ... 10°
Horizontal Pattern:				
Half-power beam width	69°	67°	66°	65°
Front-to-back ratio, copolar (180°±30°)	> 25 dB	> 25 dB	> 25 dB	> 27 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 24 dB > 8 dB	Typically: 24 dB > 8 dB	Typically: 24 dB > 8 dB	Typically: 24 dB > 8 dB
Vertical Pattern:				
Half-power beam width	8.5°	7.8°	7.5°	7.1°
Electrical tilt	1.5°–10°, continuously adjustable			
Min. sidelobe suppression for first sidelobe above main beam	18 ... 16 ... 15 dB 1.5° ... 6° ... 10° T	18 ... 17 ... 17 dB 1.5° ... 6° ... 10° T	18 ... 17 ... 17 dB 1.5° ... 6° ... 10° T	18 ... 16 ... 16 dB 1.5° ... 6° ... 10° T

Impedance	50 Ω
VSWR	< 1.5
Isolation: Intrasystem	> 30 dB
Isolation: Intersystem	> 28 dB, typ. 30 dB (698–960 // 1710–2690 MHz) > 30 dB (1710–2690 // 1710–2690MHz)
Intermodulation IM3	< –150 dBc (2 x 43 dBm carrier)
Max. power per input Total power	500 W (at 50 °C ambient temperature) 1000 W (at 50 °C ambient temperature)

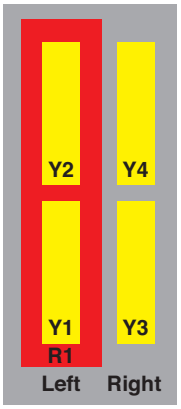
698–960 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
1.5°–10 ° electrical downtilt



Correlation Table

Frequency range	Array	Connector
698– 960 MHz	R1	1–2
1710–2690 MHz	Y1	3–4
1710–2690 MHz	Y2	5–6
1710–2690 MHz	Y3	7–8
1710–2960 MHz	Y4	9–10

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Penta-band Panel

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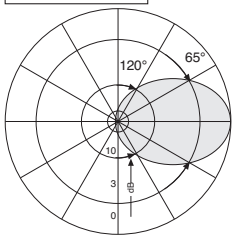
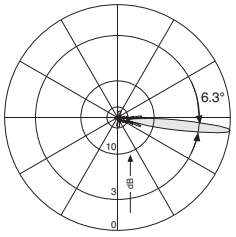
Left side, high band	**Y1, connector 3–4; Y2, connector 5–6**				
			1710–2690	**1710–2690**	
Frequency range	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz	2300 – 2400 MHz	2490 – 2690 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Average gain: (dBi) 1710–2690 MHz (Syst. bottom) 1710–2690 MHz (Syst. top) Tilt	 17.1 ... 17.2 ... 16.9 16.5 ... 16.4 ... 16.0 2° ... 7° ... 12°	 17.6 ... 17.6 ... 17.3 16.8 ... 16.7 ... 16.2 2° ... 7° ... 12°	 17.6 ... 17.6 ... 17.2 16.7 ... 16.7 ... 16.3 2° ... 7° ... 12°	 17.3 ... 17.3 ... 16.9 16.4 ... 16.4 ... 16.2 2° ... 7° ... 12°	 17.4 ... 17.7 ... 17.2 16.6 ... 17.0 ... 16.5 2° ... 7° ... 12°
Horizontal Pattern:					
Half-power beam width	64°	63°	64°	63°	64°
Front-to-back ratio, copolar (180°±30°)	 > 25 dB	 > 27 dB	 > 25 dB	 > 25 dB	 > 25 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 17 dB > 8 dB	Typically: 22 dB > 8 dB	Typically: 22 dB > 8 dB	Typically: 17 dB > 8 dB	Typically: 17 dB > 8 dB
Vertical Pattern:					
Half-power beam width	7.3°	6.9°	6.5°	5.7°	5.2°
Electrical tilt	2°–12° (Syst. bottom), 2°–12° (Syst. top), continuously adjustable				
Min. sidelobe suppression for first sidelobe above main beam Syst. bottom: Syst. top: Tilt	 18 ... 16 ... 15 dB 18 ... 16 ... 15 dB 2° ... 7° ... 12° T	 18 ... 16 ... 16 dB 18 ... 16 ... 15 dB 2° ... 7° ... 12° T	 18 ... 17 ... 15 dB 18 ... 16 ... 14 dB 2° ... 7° ... 12° T	 18 ... 18 ... 15 dB 18 ... 18 ... 15 dB 2° ... 7° ... 12° T	 18 ... 16 ... 14 dB 18 ... 17 ... 15 dB 2° ... 7° ... 12° T
Impedance	50 Ω				
VSWR	< 1.5				
Isolation: Intrasystem	> 28 dB				
Isolation: Intersystem	> 30 dB (698–960 // 1710–2690 MHz) > 30 dB (1710–2690 // 1710–2690MHz)				
Intermodulation IM3	< –150 dBc (2 x 43 dBm carrier)				
Max. power per input Total power	200 W (at 50 °C ambient temperature) 400 W (at 50 °C ambient temperature)				

1710–2690 +45°/–45° Polarization, Syst. bottom

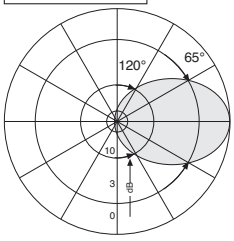


Horizontal Pattern

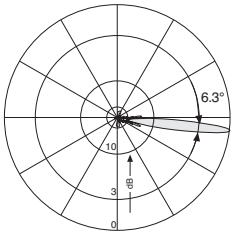


Vertical Pattern
2°–12° electrical downtilt

1710–2690 +45°/–45° Polarization, Syst. top



Horizontal Pattern



Vertical Pattern
2°–12° electrical downtilt

936.A3070/a Subject to alteration.

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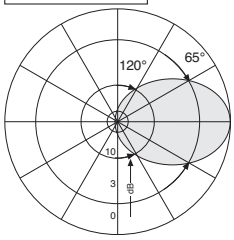
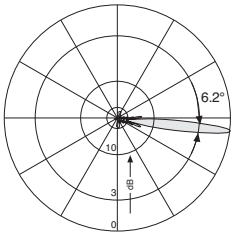
Right side, high band	**Y3, connector 7–8; Y4, connector 9–10**				
		1710–2690	**1710–2690**		
Frequency range	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz	2300 – 2400 MHz	2490 – 2690 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Average gain: (dBi) 1710–2690 MHz (Syst. bottom) 1710–2690 MHz (Syst. top) Tilt	 17.2 ... 17.2 ... 17.1 16.7 ... 16.6 ... 16.5 2.5° ... 7° ... 12°	 17.5 ... 17.5 ... 17.3 17.1 ... 17.1 ... 16.9 2.5° ... 7° ... 12°	 17.6 ... 17.7 ... 17.5 17.1 ... 17.1 ... 16.9 2.5° ... 7° ... 12°	 18.0 ... 18.1 ... 18.0 17.2 ... 17.3 ... 17.2 2.5° ... 7° ... 12°	 18.0 ... 18.3 ... 17.7 17.3 ... 17.7 ... 16.9 2.5° ... 7° ... 12°
Horizontal Pattern:					
Half-power beam width	67°	66°	66°	66°	64°
Front-to-back ratio, copolar (180°±30°)	> 25 dB	> 25 dB	> 26 dB	> 28 dB	> 25 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 17 dB > 9 dB	Typically: 19 dB > 10 dB	Typically: 18 dB > 10 dB	Typically: 17 dB > 9 dB	Typically: 18 dB > 9 dB
Vertical Pattern:					
Half-power beam width	7.2°	6.7°	6.4°	5.6°	5.0°
Electrical tilt	2.5°–12° (Syst. bottom), 2.5°–12° (Syst. top), continuously adjustable				
Min. sidelobe suppression for first sidelobe above main beam Syst. bottom: Syst. top: Tilt	 17 ... 18 ... 17 dB 17 ... 16 ... 16 dB 2.5° ... 7° ... 12° T	 18 ... 18 ... 18 dB 18 ... 18 ... 18 dB 2.5° ... 7° ... 12° T	 18 ... 18 ... 18 dB 18 ... 18 ... 18 dB 2.5° ... 7° ... 12° T	 18 ... 18 ... 18 dB 18 ... 18 ... 18 dB 2.5° ... 7° ... 12° T	 17 ... 18 ... 18 dB 17 ... 18 ... 18 dB 2.5° ... 7° ... 12° T

Impedance	50 Ω
VSWR	< 1.5
Isolation: Intrasystem	> 28 dB
Isolation: Intersystem	> 30 dB (698–960 // 1710–2690 MHz) > 30 dB (1710–2690 // 1710–2690MHz)
Intermodulation IM3	< –150 dBc (2 x 43 dBm carrier)
Max. power per input Total power	200 W (at 50 °C ambient temperature) 400 W (at 50 °C ambient temperature)

1710–2690 +45°/–45° Polarization, Syst. bottom

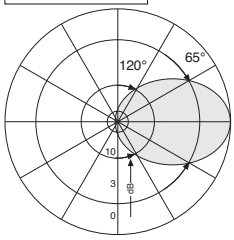


Horizontal Pattern

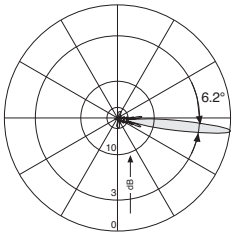


Vertical Pattern
2.5°–12° electrical downtilt

1710–2690 +45°/–45° Polarization, Syst. top



Horizontal Pattern



Vertical Pattern
2.5°–12° electrical downtilt

Mechanical specifications	
Input	10 x 7-16 female (long neck)
Connector position	Bottom
Adjustment mechanism	FlexRET, continuously adjustable
Wind load (approx.)	Frontal: 1710 N (at 150 km/h) Lateral: 560 N (at 150 km/h) Rearside: 1760 N (at 150 km/h)
Max. wind velocity	200 km/h
Height/width/depth	2691 / 377 / 169 mm
Category of mounting hardware	H (Heavy)
Weight (approx.)	44 kg / 46 kg (clamps incl.)
Packing size	3021 x 397 x 212 mm
Scope of supply	Panel, FlexRET and 2 units of clamps for 42 – 115 mm diameter

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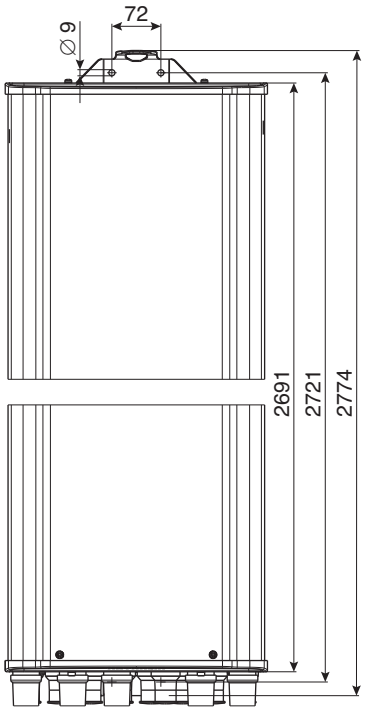
Accessories (order separately if required)

Type No.	Description	Remarks	Weight approx.	Units per antenna
85010002	1 clamp	Mast: 110 – 220 mm diameter	2.7 kg	2
85010003	1 clamp	Mast: 210 – 380 mm diameter	4.8 kg	2
85010008	1 downtilt kit	Downtilt angle: 0° – 8°	6.5 kg	1

Accessories (included in the scope of supply)

738546	1 clamp	Mast: 42 – 115 mm diameter	1.1 kg	2
86010153	FlexRET			1

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.

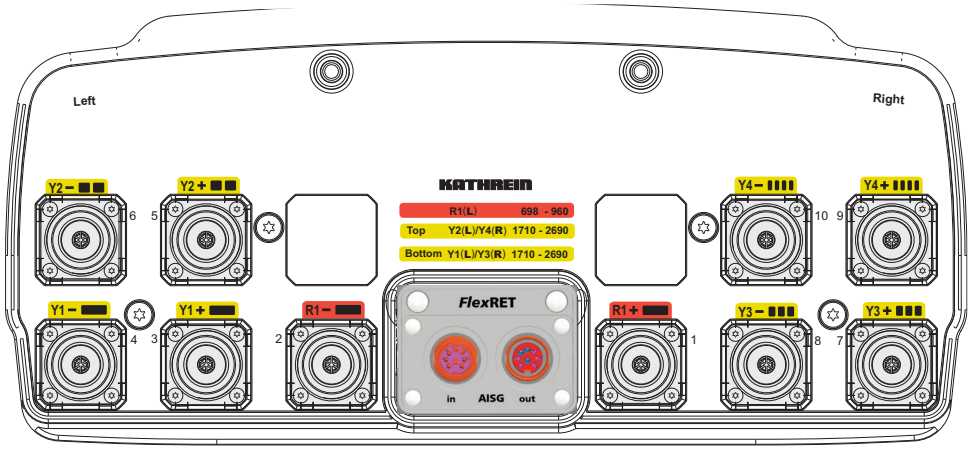
Grounding:
The metal parts of the antenna including the mounting kit and the inner conductors are DC grounded.

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

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.

Layout of interface:



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 and thereby respects the static mechanical load imposed on an antenna by wind at maximum velocity. Wind loads are calculated according to DIN 1055-4. 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 installation team must be properly qualified and also be familiar with the relevant national safety regulations.
The details given in our data sheets have to be followed carefully when installing the antennas and accessories.
The limits for the coupling torque of RF-connectors, recommended by the connector manufacturers must be obeyed.

Any previous datasheet issues have now become invalid.

936.A3070/a Subject to alteration.