

**> Features**

- Compact design
- Low axial ratio for optimum performance
- Read range\*: up to 12 m (\* depending on tag properties, environment and requirements)
- Optimized for portal applications
- Suitable for use in industrial environments
- High IP65 degree of protection, suitable for outdoor use



**> General specifications**

Order No.		52010078	52010079
Type		WIRA-70-circular-ETSI	WIRA-70-circular-FCC
Frequency range	[MHz]	865-868	902-928
©KRAI			-
Polarization		circular	circular
Antenna gain	[dBiC]	typ. 8.5 (at 866 MHz)	typ. 8.3 (at 915 MHz)
Axial ratio	[dB]	typ. 1	
VSWR		typ. 1.2:1	
Front-to-back ratio	[dB]	> 18	
Impedance antennaport	[Ohm]	50	
Max. input power	[dBm]	-	+30 (at antenna port) (FCC15.247)
Max. radiated power	[dBm]	+33 e.r.p. (ETSI EN 302 208)	+36 EIRP (FCC15.247)
Far field half-power beam width (if mounted like picture)	[°]	69	
Connection		TNC female	
Weight	[kg]	1.7	
Degree of protection		IP65	
Operating temperature range	[°C]	-20 to +55	
Storage temperature range	[°C]	-40 to +85	
Dimensions (L x W x H)	[mm]	271 x 271 x 45	
Packing size (L x W x H)	[mm]	approx. 300 x 300 x 150	
Material			
Antenna cover		tough, weather-resistant polymer blend, colour: RAL7045	
Chassis		aluminium	
Patch plate		brass tin-plated	
Seals		thermoplastic elastomer	

**> Remarks**

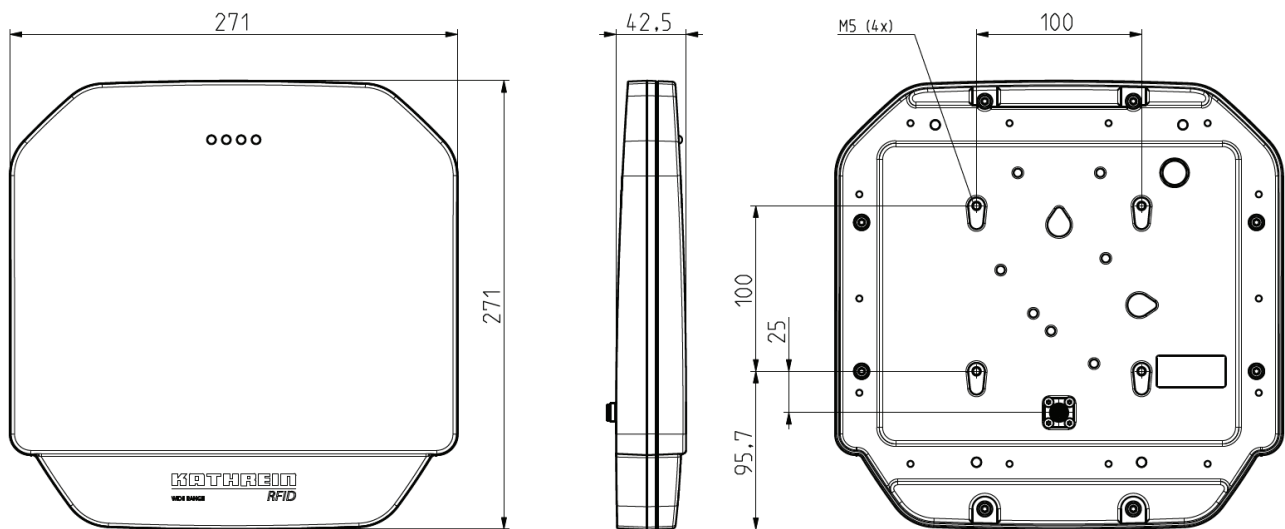
**Mounting options**

- Four M5 drill holes at intervals of 100 x 100 mm

**Accessories optional**

- All accessories can be found at: <https://http://www.kathrein-solutions.com/products/hardware/accessories>

➤ **Dimensions [mm]**



## Description

For classic far field applications with large reading distances, the Wide Range Antennas (WIRA) are the optimal choice: they are characterised by a very low axial ratio for circular polarization, whereby the dependence of reading results upon the position or a lignment of tags is significantly reduced. For this reason they are also the ideal solution for portal applications in addition to many other application possibilities.

## Key Application

- Gate applications for goods registration
- Logistics
- Vehicle registration
- Bulk and single tag applications

**> Features**

- Compact design for ruggedized environmental applications
- Low axial ratio for optimum performance
- Read range\*: up to 18 m (\* depending on tag properties, environment and requirements)
- Ideal solution for portal applications
- Different far field half-power beam widths in azimuth and elevation plane
- Suitable for bulk and single tag applications
- High IP65 degree of protection, suitable for outdoor use



**> General specifications**

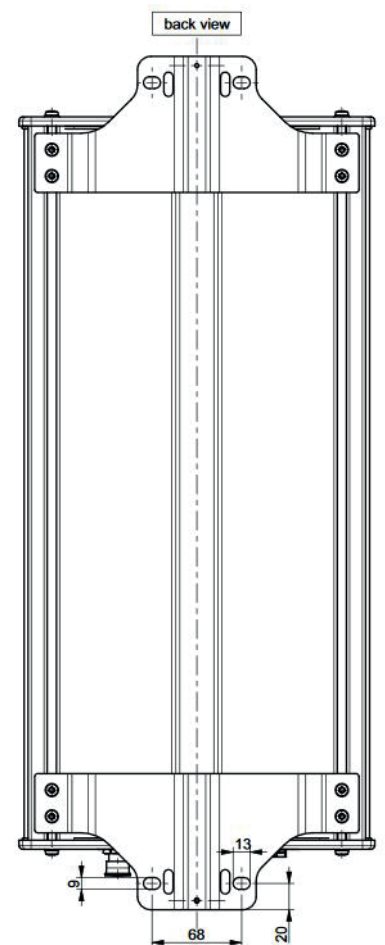
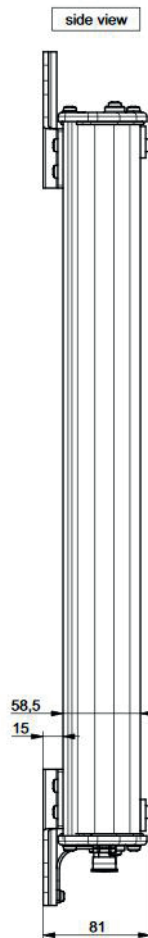
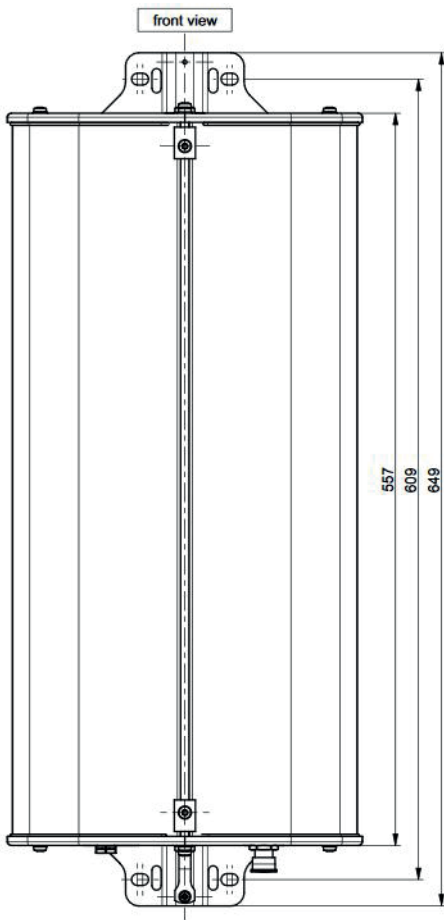
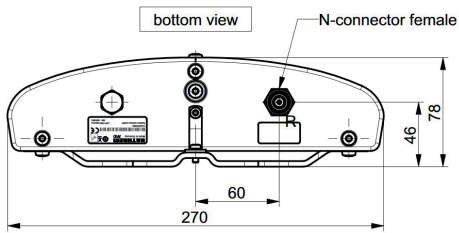
Order No.		52010086	52010087
Type		WIRA-30-circular-ETSI	WIRA-30-circular-FCC
Frequency range	[MHz]	865-868 (865-867 for India)	902-928
©KRAI			-
Polarization		circular	circular
Antenna gain	[dBiC]	typ. 11.5	typ. 11
Axial ratio	[dB]		< 2
VSWR		typ. 1.2:1	< 1.3:1
Front-to-back ratio	[dB]		> 20
Impedance antennaport	[Ohm]		50
Max. radiated power	[dBm]	+33 e.r.p. (ETSI EN 302 208)	+36 EIRP (FCC15.247)
Far field half-power beam width (if mounted like picture)	[°]		30 vertical 70 horizontal
Connection			N female
Weight	[kg]		3.7
Degree of protection			IP65
Operating temperature range	[°C]		-20 to +55
Storage temperature range	[°C]		-40 to +85
Dimensions (L x W x H) (without brackets)	[mm]		557 x 270 x 58.5
Packing size (L x W x H)	[mm]		762 x 356 x 203
<b>Material</b>			
Antenna cover		fibreglass radome, UV resistance, gray	
Chassis		stainless steel	
Patch plate		brass tin-plated	
Antenna support		aluminium	
Seals		thermoplastic elastomer	

**> Remarks**

**Accessories optional**

- All accessories can be found at: <https://http://www.kathrein-solutions.com/products/hardware/accessories>

➤ **Dimensions [mm]**



**> Features**

- Controlled via Kathrein RFID Antenna Interface ©KRAI
- Dynamic and static polarization switching (Circular LHCP/Circular RHCP/Linear horizontal/Linear vertical)
- Low axial ratio for optimum performance
- 4 LEDs for visualization
- Signal and controlling via standard antenna coaxial cable
- Read range\*: up to 12 m (\* depending on tag properties, environment and requirements)
- Optimized for portal applications, Suitable for use in industrial environments
- High IP65 degree of protection; suitable for outdoor use



**> General specifications**

Order No.		52010193	52010194
Type		WIRA-70-KRAI-ETSI	WIRA-70-KRAI-FCC
Frequency range	[MHz]	865-868	902-928
©KRAI		✓	
Polarization circular		LHCP / RHCP *	
Antenna gain	[dBiC]	typ. 6.5	
Axial ratio	[dB]	typ. 2	
Polarization linear		horizontal / vertical	
Antenna gain	[dBi]	typ. 7.5	
VSWR		typ. 1.4:1	typ. 1.8:1
Front-to-back ratio	[dB]	> 18	
Impedance antennaport	[Ohm]	50	
Max. input power	[dBm]	-	+30 (at antenna port) (FCC15.247)
Max. radiated power	[dBm]	+33 e.r.p. (ETSI EN 302 208)	+36 EIRP (FCC15.247)
Far field half-power beam width (if mounted like picture)	[°]	69	
Connection		TNC female	
Weight	[kg]	1.7	
Degree of protection		IP65	
Operating temperature range	[°C]	-20 to +55	
Storage temperature range	[°C]	-40 to +85	
Dimensions (L x W x H)	[mm]	271 x 271 x 45	
Packing size (L x W x H)	[mm]	approx. 300 x 300 x 150	
Material			
Antenna cover		tough, weather-resistant polymer blend, colour: RAL7045	
Chassis		aluminium	
Patch plate		brass tin-plated	
Seals		thermoplastic elastomer	

\* Left-/Right-Hand Circular Polarization

**> Remarks**

**Notes**

- The antenna can be operated only in conjunction with a ©KRAI Reader when commissioning the antenna is circular RHC polarized

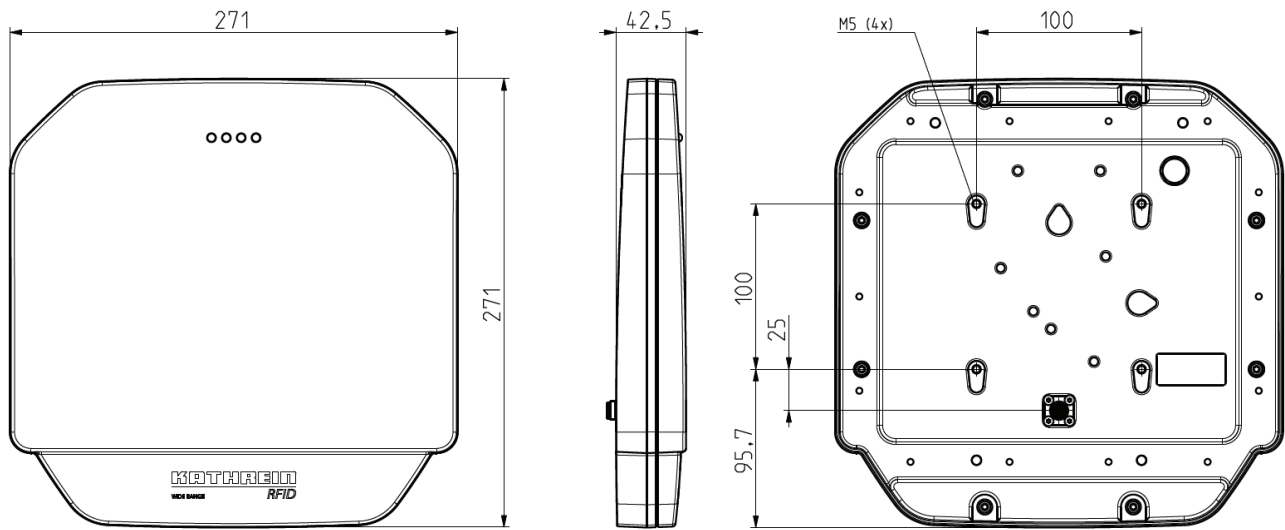
**Mounting options**

- Four M5 drill holes at intervals of 100 x 100 mm

**Accessories optional**

- All accessories can be found at: <https://http://www.kathrein-solutions.com/products/hardware/accessories>

➤ **Dimensions [mm]**



**Description**

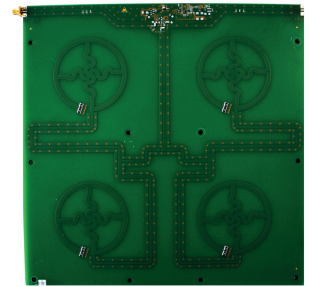
For classic far field applications with large reading distances, the Wide Range Antennas (WIRA) are the optimal choice: they are characterised by a very low axial ratio for circular polarization, whereby the dependence of reading results upon the position or a lignment of tags is significantly reduced. For this reason they are also the ideal solution for portal applications in addition to many other application possibilities.

**Key Application**

- Gate applications for goods registration
- Logistics
- Vehicle registration
- Bulk and single tag applications

> **Features**

- Antenna module for assembly integration
- For applications in radiated near-field, suitable for static tag identifications
- Extremely thin design
- Read range: up to 1 m
- Very homogeneous reading field
- Extremely high front-to-back ratio



> **General specifications**

Order No.		52010219
Type		SMSH-30-30-ETSI-FCC
Frequency range	[MHz]	865-928
©KRAI		-
Protection cover		optional
Polarization		circular
Antenna gain	[dBiC]	typ. -7
Axial ratio	[dB]	typ. 1.5
Impedance	[Ohm]	50
VSWR		typ. 1.25:1
Front-to-back ratio	[dB]	> 20
max. input power (ETSI EN 302 208)	[dBm]	+33
max. input power (FCC 15.247)	[dBm]	+30 (at antenna port)
Far field half-power beam width	[°]	60 / 60
Connection		SMA female
Weight	[kg]	0.5
Degree of protection		indoor use only
Operating temperature range	[°C]	-20 to +55
Storage temperature range	[°C]	-40 to +85
Dimensions (L x W x H)	[mm]	310 x 300 x 8.6
Packing size (L x W x H)	[mm]	approx. 330 x 310 x 25
Material		fibreglass-epoxy resin

> **Remarks**

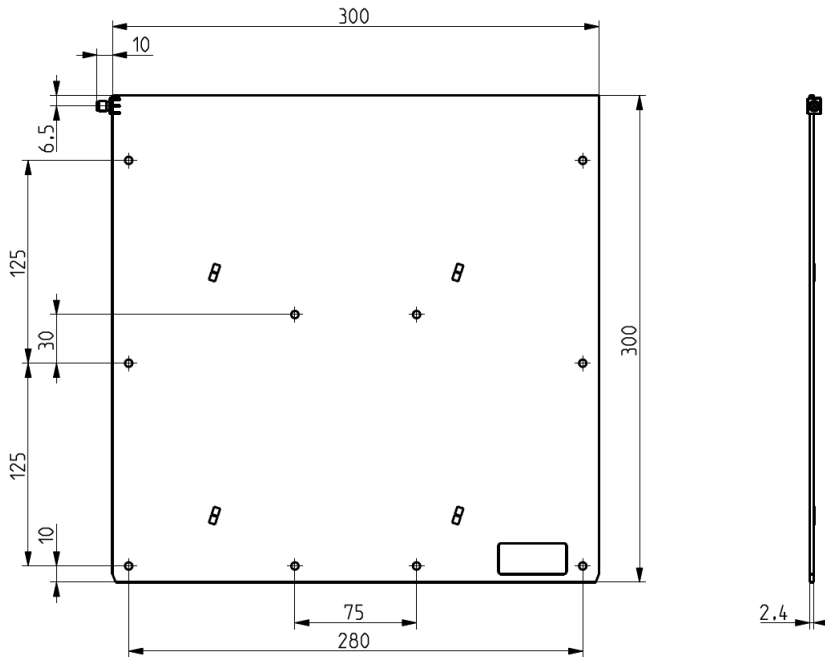
**Mounting options**

- 10 through-holes Ø 4.5 mm for M4 screws to mount on wall/ceiling

**Accessories optional**

- All accessories can be found at: <https://http://www.kathrein-solutions.com/products/hardware/accessories>

➤ **Dimensions [mm]**



## Description

The SMSh-30-30-ETSI-FCC antenna was developed for applications in the field of point of sale, smart shelf applications and Kanban solutions. The antenna is characterized by an extremely homogeneous read zone, which is emitted by the high front to back ratio. Therefore it is suitable for static detection of multiple transponders. Due to their extremely thin design, the antenna module can be integrated into different applications universal.

## Key Application

- Point of sales applications
- Smart shelf applications
- Kanban applications
- Conveyor belt applications



> **Features**

- Controlled via Kathrein RFID Antenna Interface ©KRAI
- Compact design
- Low axial ratio for optimum performance
- Read range \*: up to 6 m (\* depending on tag properties, environment and requirements)
- Switchable reading field +/- 35°
- Ideal solution for portal applications
- Suitable for EAS anti-theft protection
- High IP65 degree of protection, suitable for outdoor use



> **General Specifications**

Order No.		52010227	52010228
Type		WIRA-30-CSB-KRAI-ETSI	WIRA-30-CSB-KRAI-FCC
Frequency range	[MHz]	865-868	902-928
©KRAI			✓
Polarization			circular
Antenna gain	[dBiC]		typ. 5.5
Axial ratio	[dB]		typ. 2
VSWR		typ. 1.3:1	typ. 1.3:1
Front-to-back ratio	[dB]		> 17
Impedance antennaport	[Ohm]		50
Max. input power	[dBm]	+30 (ETSI EN 302 208)	+30 (FCC15.247)
Far field half-power beam width (if mounted like picture)	[°]		30 vertical 85 horizontal
Connection			N female
Weight	[kg]		3.7
Degree of protection			IP65
Operating temperature range	[°C]		-20 to +55
Storage temperature range	[°C]		-40 to +85
Dimensions (L x W x H) (without brackets)	[mm]		557 x 270 x 58.5
Packing size (L x W x H)	[mm]		762 x 356 x 203
<b>Material</b>			
Antenna cover			fibreglass radome, UV resistance, gray
Chassis			stainless steel
Patch plate			brass tin-plated
Antenna support			aluminium
Seals			thermoplastic elastomer

> **Remarks**

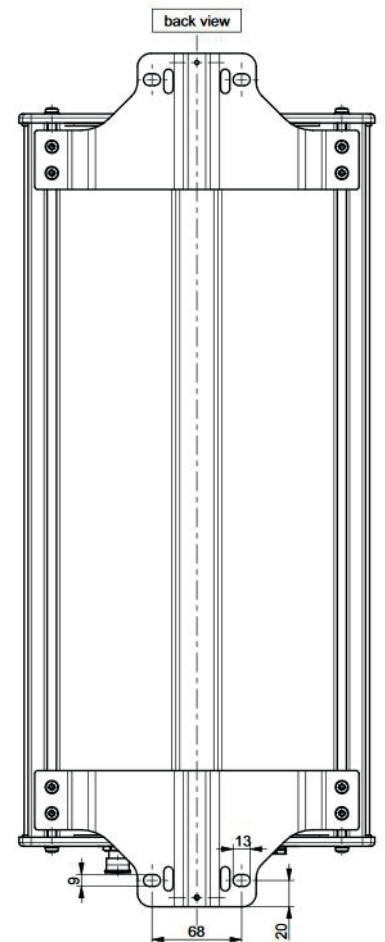
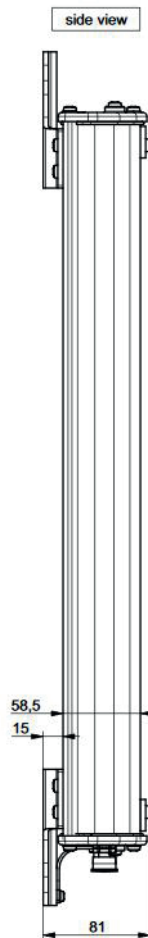
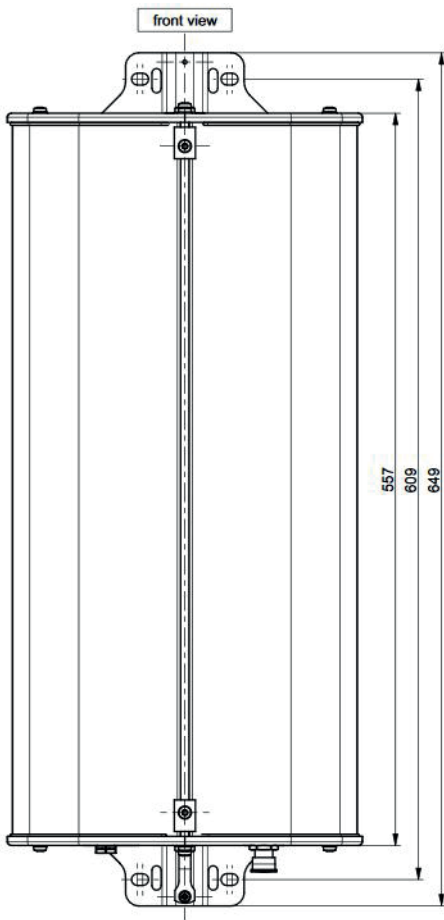
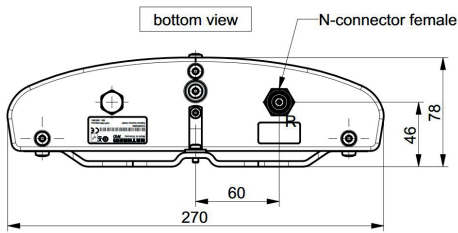
**Notes**

- The antenna can be operated only in conjunction with a ©KRAI Reader

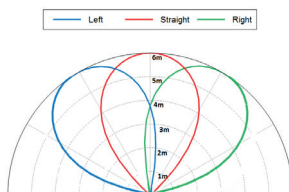
**Accessories optional**

- All accessories can be found at: <https://http://www.kathrein-solutions.com/products/hardware/accessories>

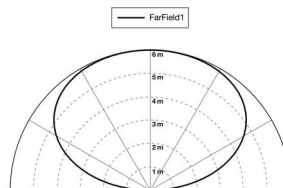
➤ **Dimensions [mm]**



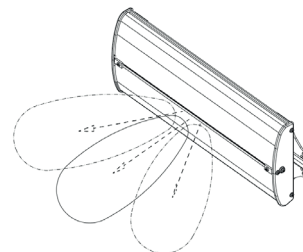
Read range vertical cut



Read range horizontal cut  
(if mounted like picture)



Directions of the switched beam



The antenna is characterised by an extremely homogeneous read zone which is emitted by the high front-to-back ratio.

Due to its extremely thin design, the antenna module can be integrated into different applications.



## > General Specifications

Order No.		52010318
Type		SSMH-HG-KRAI-FCC
Frequency range	[MHz]	902–928
©KRAI		cascading
Protection cover		✓
Read range	[m]	3
Polarisation		circular
Antenna gain	[dBiC]	typ. 5
Axial ratio	[dB]	typ. 3.5
VSWR		typ. 1.3:1
Front-to-back ratio	[dB]	> 20
Max. input power	[dBm]	+30
Far-field half-power beam width	[°]	58/58
Connection		input: SMA female output: SMA female
Weight	[kg]	1.0
Degree of protection		indoor use only
Operating temperature range	[°C]	–20 to +55
Storage temperature range	[°C]	–40 to +85
Dimensions (L x W x H)	[mm]	330 x 340 x 20
Package size (L x W x H)	[mm]	approx. 345 x 350 x 35
Material		thermoplastic radome, UV-resistant, fibreglass-epoxy resin

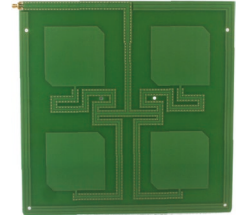
## > Key Applications

- point-of-sales applications
- Kanban applications
- smart shelf applications
- conveyor belt applications



The antenna is characterised by an extremely homogeneous read zone which is emitted by the high front-to-back ratio.

Due to its extremely thin design, the antenna module can be integrated into different applications.



## > General Specifications

Order No.		52010319
Type		SMSH-HG-FCC
Frequency range	[MHz]	902–928
©KRAI		–
Protection cover		optional
Read range	[m]	3
Polarisation		circular
Antenna gain	[dBiC]	typ. 5
Axial ratio	[dB]	typ. 3.5
VSWR		typ. 1.3:1
Front-to-back ratio	[dB]	> 20
Max. input power	[dBm]	+30
Far-field half-power beam width	[°]	58/58
Connection		input: SMA female
Weight	[kg]	1.0
Degree of protection		indoor use only
Operating temperature range	[°C]	–20 to +55
Storage temperature range	[°C]	–40 to +85
Dimensions (L x W x H)	[mm]	310 x 300 x 8.6
Package size (L x W x H)	[mm]	approx. 330 x 310 x 25
Material		thermoplastic radome, UV-resistant, fibreglass-epoxy resin

## > Key Applications

- point-of-sales applications
- Kanban applications
- smart shelf applications
- conveyor belt applications



## > Features

- Compact design for ruggedised environmental applications
- Read range: up to 18 m (depending on tag properties, environment and requirements)
- Ideal solution for toll collect applications
- Suitable for bulk and single tag applications
- High degree of protection, IP65 suitable for outdoor use



## > General Specifications

Order No.		52010251	52010252
Type		WIRA-40-linear-ETSI	WIRA-40-linear-FCC
Frequency range	[MHz]	865–868	902–928
©KRAI			–
Polarisation			linear
Antenna gain	[dBi]	typ. 12.5	typ. 13
VSWR			typ. 1.3:1
Front-to-back ratio	[dB]		> 25
Impedance, antenna port	[Ohm]		50
Max. radiated power	[dBm]	+33 e.r.p. (ETSI EN 302 208)	+36 EIRP (FCC15.247)
Far-field half-power beam width	[°]		40/40
Connection			N female
Weight	[kg]		2.7
Degree of protection			IP65
Operating temperature range	[°C]		–40 to +70
Storage temperature range	[°C]		–40 to +85
Dimensions (L x W x H)	[mm]		480 x 480 x 25 (45.5)
Package size (L x W x H)	[mm]		approx. 520 x 510 x 70
Material			
	Antenna cover		hermoplastic radome, UV resistant
	Chassis		aluminium

## > Key Applications

- Automated vehicle identification:
  - Electronic toll collect – tolling plaza and free-flow traffic
  - Intelligent parking interfaces
- Bulk and single-tag applications

## > Accessories

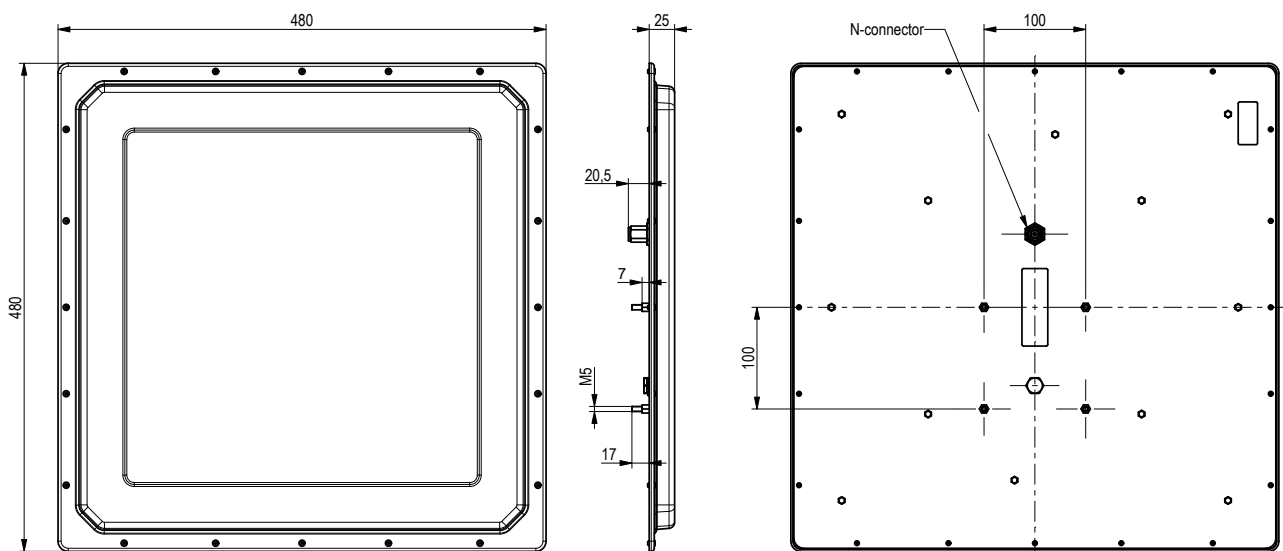
- Pole bracket MK-WPGM-100-100-Outdoor

For more information about accessories, go to <http://www.kathrein-solutions.com/products/hardware/accessories>.

## > Mounting

- Install the antenna on the pole bracket using four M5 threaded bolts at intervals of 100 x 100 mm.

## > Dimensions





> **Features**

- Compact design and small dimensions
- Typical read range\*: up to 2 m (\* depending on tag properties, environment and requirements)
- Various transponder types possible to use
- Integration possible in applications where space is limited
- Use in transition range between near field and far field application
- Suitable for use in industrial environments, suitable for bulk and single tag applications
- High IP67 degree of protection, suitable for outdoor use



> **General specifications**

Order No.		52010082	52010083
Type		MIRA-100-circular-ETSI	MIRA-100-circular-FCC
Frequency range	[MHz]	865-868	902-928
©KRAI			-
Polarization		circular	circular
Antenna gain	[dBiC]	2.5 (at 866 MHz)	2.5 (at 915 MHz)
Axial ratio	[dB]	typ. 1.5	typ. 2.5
VSWR		typ. 1.3:1	typ. 1.5:1
Front-to-back ratio	[dB]	typ. 10	> 10
Impedance antennaport	[Ohm]		50
Max. input power	[dBm]	-	+30 (at antenna port) (FCC15.247)
Max. radiated power	[dBm]	+30 e.r.p. (ETSI EN 302 208)	-
Far field half-power beam width (if mounted like picture)	[°]		100
Connection			TNC female
Weight	[kg]		0.32
Degree of protection			IP67
Operating temperature range	[°C]		-20 to +55
Storage temperature range	[°C]		-40 to +85
Dimensions (L x W x H)	[mm]		156 x 143.8 x 36
Packing size (L x W x H)	[mm]		approx. 230 x 160 x 81
Material			
	Antenna cover		tough, weather-resistant polymer blend, colour: RAL7045

> **Remarks**

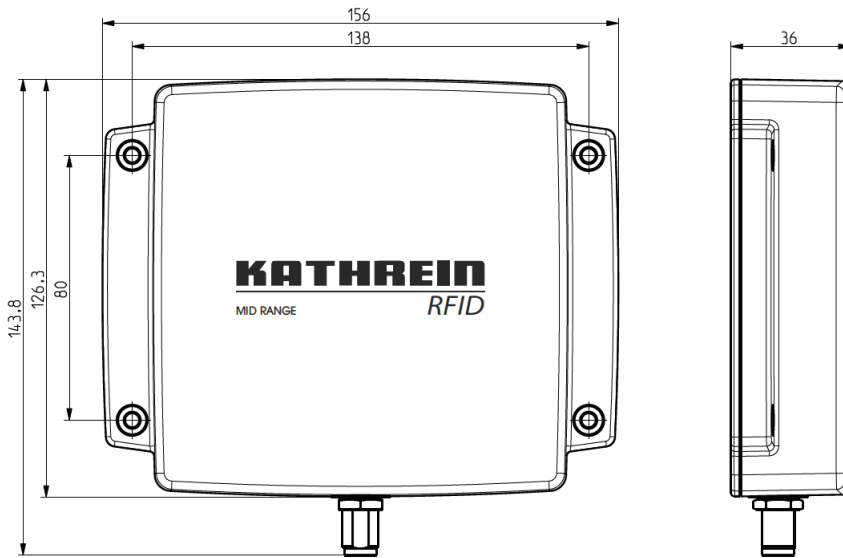
**Mounting options**

- Four through-holes Ø 4.2 mm for M4 screws

**Accessories optional**

- All accessories can be found at: <https://http://www.kathrein-solutions.com/products/hardware/accessories>

➤ **Dimensions [mm]**



**Description**

The mid-range antenna (MIRA) was developed for applications in range between the near and far field. The focus of the compact design was for integration in space-critical applications. Reading distances of up to 5 m are still possible with dimensions of 143.8 x 156 mm. In this case, however, the reading range is very wide.

In most cases the MIRA is used for reading distances up to 2 m, for which it features sufficient selectivity. Therefore, this antenna design is especially suitable for applications in the so-called transition area with different tag types.

**Key Application**

Logistics applications: installing to corridor conveyor vehicles

Materials handling applications

Gate applications for goods registration

Bulk and single tag applications

Access systems (e.g. ski lifts, control systems for tickets)

> **Features**

- Minimal dimensions
- Extremely high selectivity
- Extremely high resistance to interference (multi-reader applications)
- Suitable for use in industrial environments
- Optimized for near field applications
- High IP67 degree of protection
- Suitable for outdoor use



> **General specifications**

Order No.		52010084	5210085
Type		LORA-ETSI	LORA-FCC
Frequency range	[MHz]	865-868	902-928
©KRAI			-
Polarization			-
Antenna gain	[dBiC]		-15
EIFF *	[dB]		20
VSWR		typ. 1.3:1	typ. 1.8:1
Impedance antennaport	[Ohm]		50
Max. input power	[dBm]	+27 (at antenna port) (ETSI EN 302 208)	+27 (at antenna port) (FCC15.247)
Range of near field tags **	[cm]		7
Selectivity of near field tags **	[cm]		5
Range of far field tags **	[cm]		-
Selectivity of far field tags **	[cm]		-
Connection			TNC female
Weight	[kg]		0.11
Degree of protection			IP67
Operating temperature range	[°C]		-20 to +55
Storage temperature range	[°C]		-40 to +85
Dimensions (L x W x H)	[mm]		79.5 x 90 x 31
Packing size (L x W x H)	[mm]		approx. 165 x 250 x 50
Material			
Antenna cover		tough, weather-resistant polymer blend, colour: RAL7045	

\* The Effective Isotropic Field Factor (EIFF) shows the field isolation from far field to near field standardised to an isotropic radiator. The values were determined with 3 cm spacing.

\*\* dependant upon transmission power and tag type

> **Remarks**

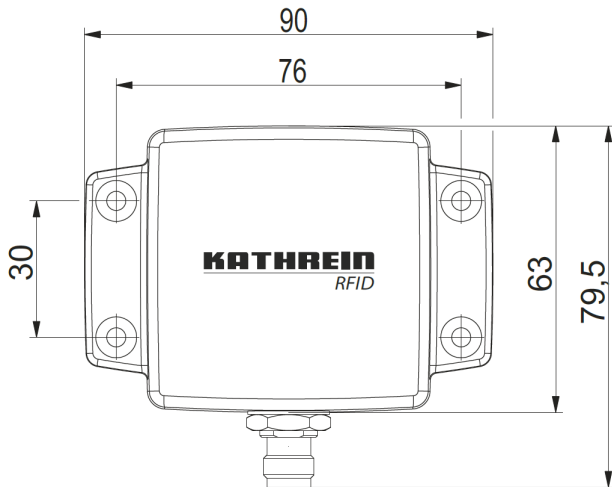
**Mounting options**

- Four through-holes Ø 4.2 mm for M4 screws

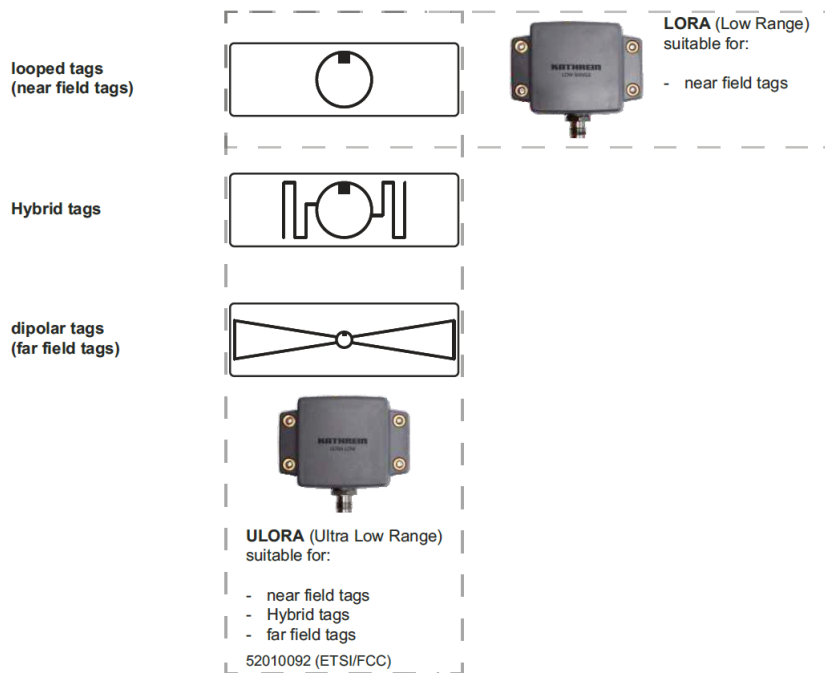
**Accessories optional**

- All accessories can be found at: <https://http://www.kathrein-solutions.com/products/hardware/accessories>

➤ **Dimensions [mm]**



➤ **Tag type**



**Description**

The Ultra Low Range Antenna (ULORA) and Low Range Antenna (LORA) feature a high field concentration in the near field with simultaneously extremely minimised antenna gain in the far field. With these properties the antennas achieve outstanding reading and writing results with ranges up to 10 cm with a typical selectivity of 5 cm. The special design of these antennas guarantees interference-free operation in multi-reader environments.

The ULORA was especially developed to read dipolar tags (far field tags) at very limited distances. In addition this antenna can address looped tags (near field tags) up to 3 cm. The LORA version was developed in order to increase the range for near field tags, with which ranges up to 7 cm can be achieved. The range of applications of the antennas according to tag type is displayed in the tag association table.

**Key Application**

- Pharmaceutical industry (e.g. individual tag capture on liquid-filled vessels and blister packs)
- Access controls
- Automation industry

> **Features**

- Minimal dimensions
- Extremely high selectivity
- Extremely high resistance to interference (multi-reader applications)
- Suitable for use in industrial environments
- Optimized for near field applications
- High IP67 degree of protection
- Suitable for outdoor use



> **General specifications**

Order No.		52010092
Type		U-LORA-ETSI-FCC
Frequency range	[MHz]	865-928
©KRAI		-
Polarization		-
Antenna gain	[dBiC]	- 30
EIFF *	[dB]	15
VSWR		typ. 1.2:1
Impedance antennaport	[Ohm]	50
Max. input power	[dBm]	+30 (at antenna port)
Range of near field tags **	[cm]	3
Selectivity of near field tags **	[cm]	3
Range of far field tags **	[cm]	8
Selectivity of far field tags **	[cm]	10
Connection		TNC female
Weight	[kg]	0.11
Degree of protection		IP67
Operating temperature range	[°C]	-20 to +55
Storage temperature range	[°C]	-40 to +85
Dimensions (L x W x H)	[mm]	79.5 x 90 x 31
Packing size (L x W x H)	[mm]	approx. 165 x 250 x 50
Material		
Antenna cover		tough, weather-resistant polymer blend, colour: RAL7045

\* The Effective Isotropic Field Factor (EIFF) shows the field isolation from far field to near field standardised to an isotropic radiator. The values were determined with 3 cm spacing.

\*\* dependant upon transmission power and tag type

> **Remarks**

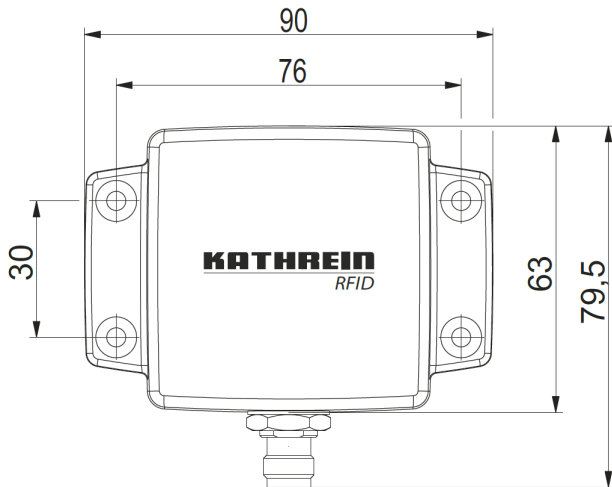
**Mounting options**

- Four through-holes Ø 4.2 mm for M4 screws




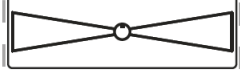

**Accessories optional**

- All accessories can be found at: <https://http://www.kathrein-solutions.com/products/hardware/accessories>

➤ **Dimensions [mm]**



➤ **Tag type**

<p><b>looped tags (near field tags)</b></p>		 <p><b>LORA (Low Range)</b> suitable for:</p> <ul style="list-style-type: none"> <li>- near field tags</li> </ul>
<p><b>Hybrid tags</b></p>		
<p><b>dipolar tags (far field tags)</b></p>		
	 <p><b>ULORA (Ultra Low Range)</b> suitable for:</p> <ul style="list-style-type: none"> <li>- near field tags</li> <li>- Hybrid tags</li> <li>- far field tags</li> </ul> <p>52010092 (ETSI/FCC)</p>	

**Description**

The Ultra Low Range Antenna (ULORA) and Low Range Antenna (LORA) feature a high field concentration in the near field with simultaneously extremely minimised antenna gain in the far field. With these properties the antennas achieve outstanding reading and writing results with ranges up to 10 cm with a typical selectivity of 5 cm. The special design of these antennas guarantees interference-free operation in multi-reader environments.

The ULORA was especially developed to read dipolar tags (far field tags) at very limited distances. In addition this antenna can address looped tags (near field tags) up to 3 cm. The LORA version was developed in order to increase the range for near field tags, with which ranges up to 7 cm can be achieved. The range of applications of the antennas according to tag type is displayed in the tag association table.

**Key Application**

- Pharmaceutical industry (e.g. individual tag capture on liquid-filled vessels and blister packs)
- Access controls
- Automation industry

**> Features**

- Compact design and small dimensions
- Read range\*: up to 1 m (\* depending on tag properties, environment and requirements)
- Various transponder types possible to use
- Integration possible in applications where space is limited
- Use in transition range between near field and far field application
- Suitable for use in industrial environments, suitable for bulk and single tag applications
- High IP67 degree of protection, suitable for outdoor use



**> General specifications**

Order No.		52010172
Type		S-MIRA-100-circular-ETSI-FCC
Frequency range	[MHz]	865-928
©KRAI		-
Polarization		circular
Antenna gain	[dBiC]	-12 (at 866 MHz) -10 (at 915 MHz)
Axial ratio	[dB]	typ. 2
VSWR		typ. 1.4:1
Front-to-back ratio	[dB]	> 8
Impedance antennaport	[Ohm]	50
Max. input power	[dBm]	+30 (at antenna port)
Far field half-power beam width (if mounted like picture)	[°]	100
Connection		TNC female
Weight	[kg]	0.32
Degree of protection		IP67
Operating temperature range	[°C]	-20 to +55
Storage temperature range	[°C]	-40 to +85
Dimensions (L x W x H)	[mm]	156 x 143.8 x 36
Packing size (L x W x H)	[mm]	approx. 230 x 160 x 81
Material		
Antenna cover		tough, weather-resistant polymer blend, colour: RAL7045

**> Remarks**

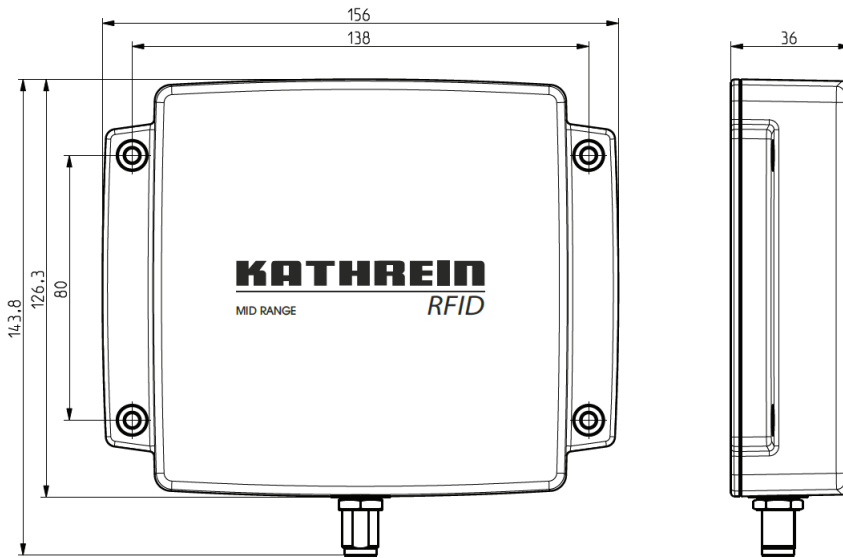
**Mounting options**

- Four through-holes Ø 4.2 mm for M4 screws

**Accessories optional**

- All accessories can be found at: <https://http://www.kathrein-solutions.com/products/hardware/accessories>

➤ **Dimensions [mm]**



**Description**

The mid-range antenna (MIRA) was developed for applications in range between the near and far field. The focus of the compact design was for integration in space-critical applications. Reading distances of up to 5 m are still possible with dimensions of 143.8 x 156 mm. In this case, however, the reading range is very wide.

In most cases the MIRA is used for reading distances up to 2 m, for which it features sufficient selectivity. Therefore, this antenna design is especially suitable for applications in the so-called transition area with different tag types.

**Key Application**

Logistics applications: installing to corridor conveyor vehicles

Materials handling applications

Gate applications for goods registration

Bulk and single tag applications

Access systems (e.g. ski lifts, control systems for tickets)



**> Features**

- Compact design for ruggedized environmental applications
- Read range\*: up to 18 m (\* depending on tag properties, environment and requirements)
- Ideal solution for toll collect applications
- Different far field half-power beam widths in azimuth and elevation plane
- Suitable for bulk and single tag applications
- High IP65 degree of protection, suitable for outdoor use



**> General Specifications**

Order No.		52010248	52010249
Type		WIRA-30-linear-ETSI	WIRA-30-linear-FCC
Frequency range	[MHz]	865-868	902-928
©KRAI			-
Polarization			linear
Antenna gain	[dBi]		typ. 11
VSWR		typ. 1.3:1	typ. 1.3:1
Front-to-back ratio	[dB]		> 20
Impedance antennaport	[Ohm]		50
Max. radiated power	[dBm]	+33 e.r.p. (ETSI EN 302 208)	+36 EIRP (FCC15.247)
Far field half-power beam width (if mounted like picture)	[°]		30 vertical 70 horizontal
Connection			N female
Weight	[kg]		3.7
Degree of protection			IP67
Operating temperature range	[°C]		-40 to +70
Storage temperature range	[°C]		-40 to +85
Dimensions (L x W x H) (without brackets)	[mm]		557 x 270 x 58.5
Packing size (L x W x H)	[mm]		762 x 356 x 203
<b>Material</b>			
Antenna cover			fibreglass radome, UV resistance, gray
Chassis			stainless steel
Patch plate			brass tin-plated
Antenna support			aluminium
Seals			thermoplastic elastomer

**> Remarks**

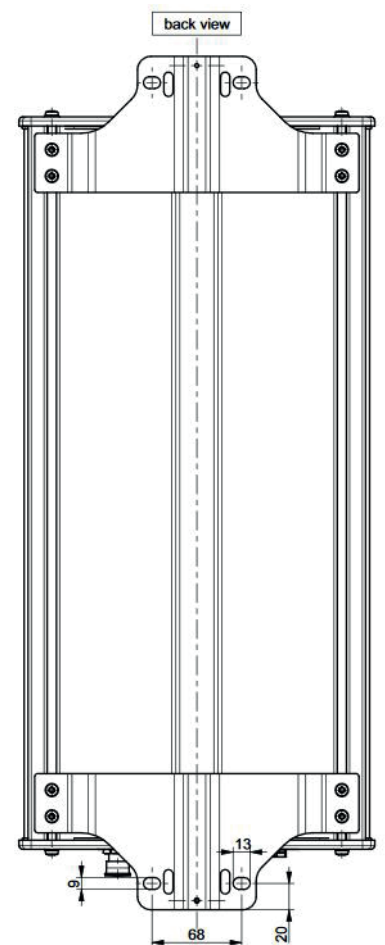
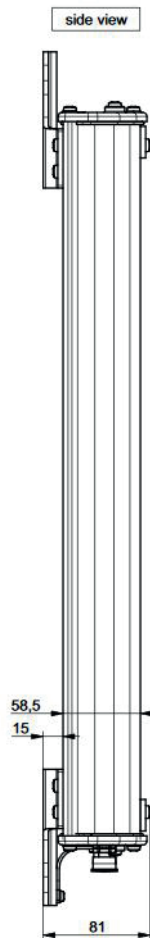
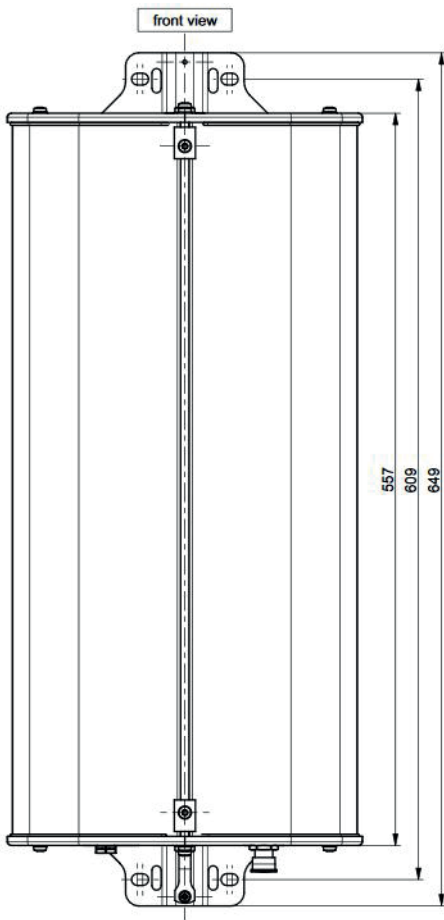
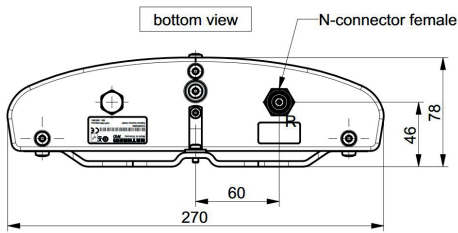
**Notes**

- The antenna can be operated only in conjunction with a ©KRAI Reader

**Accessories optional**

- All accessories can be found at: <https://http://www.kathrein-solutions.com/products/hardware/accessories>

➤ **Dimensions [mm]**



## > Features

- Compact design
- Low axial ration for optimum performance
- Read range\*: up to 12 m (\* depending on tag properties, environment and requirements)
- Optimised for portal applications
- Suitable for use in industrial environments
- High degree of protection, IP67 suitable for outdoor use

For classic far field applications with large reading distances, the Wide Range Antennas (WRA) are the optimal choice: they are characterised by a very low axial ratio for circular polarization, whereby the dependence of reading results upon the position or alignment of tags is significantly reduced. For this reason they are also the ideal solution for portal applications in addition to many other application possibilities.



## > General Specifications

Order No.		52010333	52010334
Type		WRA 7070 Antenna Unit	WRA 7070 Antenna Unit
Frequency range	[MHz]	865–868	902–928 (915–928 for Peru)
©KRAI			–
LED visualisation			–
Polarisation, circular			RHCP*
Antenna gain	[dBiC]	typ. 8.5 (at 866 MHz)	typ. 8.5 (at 915 MHz)
Axial ratio	[dB]		typ. 1
VSWR			typ. 1.2:1
Front-to-back ratio	[dB]		> 18
Impedance	[Ohm]		50
Max. input power	[dBm]		+30 (at antenna port) (FCC15.247)
Max. radiated power	[dBm]	+33 e.r.p. (ETSI EN 302 208)	+36 EIRP (FCC15.247)
Far-field half-power beam width	[°]		65
Connection			TNC female
Weight	[kg]		1.7
Degree of protection			IP67
Operating temperature range	[°C]		–40 to +70
Storage temperature range	[°C]		–40 to +85
Dimensions (L x W x H)	[mm]		300 x 300 x 49
Package size (L x W x H)	[mm]		approx. 350 x 350 x 80
Material			
	Antenna cover	tough, weather-resistant polymer blend, colour: RAL7035	
	Chassis	aluminium, powder coated	
	Patch plate	brass, tin-plated	
	Seals	thermoplastic elastomer	

\* right-hand circular polarisation

## > Key Applications

- Gate applications for goods registration
- Logistics
- Vehicle registration
- Bulk and single-tag applications

## > Mounting



### NOTICE

Risk of damage to property!

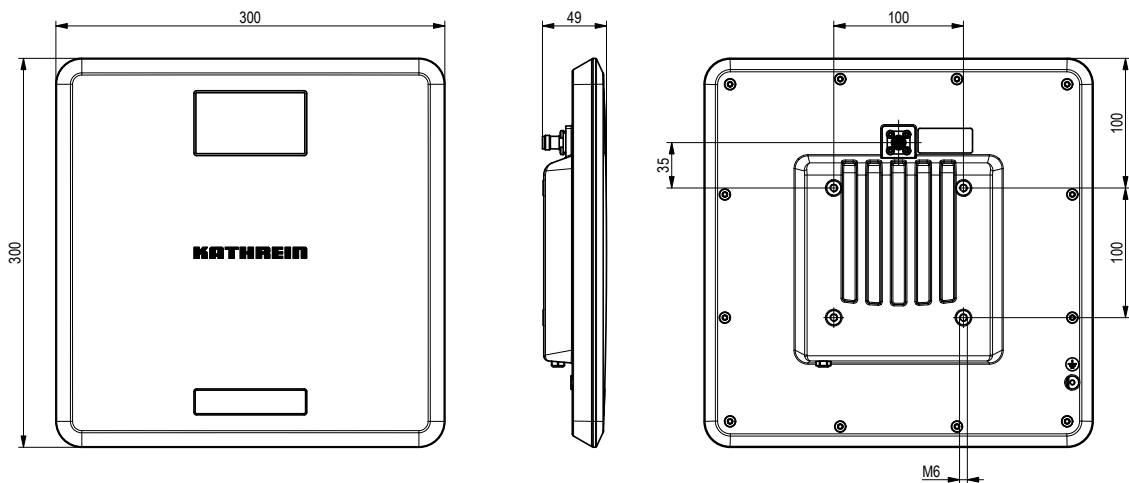
- ▶ Make sure that the screw is only screwed in max. 10 mm deep into the housing ( $M_{max} = 5 \text{ Nm}$ ).

- Four M6 drill holes at intervals of 100 x 100 mm

## > Accessories (Optional)

You can find all accessories at <http://www.kathrein-solutions.com/products/hardware/accessories>.

## > Dimensions



## > Features

- controlled via Kathrein RFID antenna interface ©KRAI
- dynamic and static polarisation switching (circular LHCP/circular RHCP/linear horizontal/linear vertical)
- low axial ratio for optimum performance
- 4 LEDs for visualisation, freely programmable (high-end LED)
- signal and controlling via standard antenna coaxial cable
- read range\*: up to 12 m (\* depending on tag properties, environment and requirements)
- optimised for portal applications, suitable for use in industrial environments
- high degree of protection, IP67 suitable for outdoor use



For classic far-field applications with large reading distances, the Wide Range Antennas (WRA) are the optimal choice: they are characterised by a very low axial ratio for circular polarisation, whereby the dependence of reading results upon the position or alignment of tags is significantly reduced. For this reason, they are also the ideal solution for portal applications in addition to many other application possibilities.

## > General Specifications

Order No.		52010335	52010336
Type		WRA 7070 ©KRAI Antenna Unit	WRA 7070 ©KRAI Antenna Unit
Frequency range	[MHz]	865–868	902–928
©KRAI			✓
LED visualisation		high-end LED (freely programmable)	
Polarisation, circular		LHCP/RHCP*	
Antenna gain	[dBiC]	typ. 6.5	
Axial ratio	[dB]	typ. 2	
Polarisation, linear		horizontal/vertical	
Antenna gain	[dBiC]	7.0	7.0
VSWR		typ. 1.4:1	typ. 1.8:1
Front-to-back ratio	[dB]	> 18	
Impedance	[Ohm]	50	
Max. input power	[dBm]	+30 (at antenna port) (FCC 15.247)	
Max. radiated power	[dBm]	+33 ERP (ETSI EN 302 208)	+36 EIRP (FCC 15.247)
Far-field half-power beam width	[°]	65	
Connection		TNC female	
Weight	[kg]	1.7	
Degree of protection		IP67	
Operating temperature range	[°C]	–20 to +55	
Storage temperature range	[°C]	–40 to +85	
Dimensions (L x W x H)	[mm]	300 x 300 x 49	
Package size (L x W x H)	[mm]	approx. 350 x 350 x 80	
Material			
	Antenna cover	tough, weather-resistant polymer blend, colour: RAL7035	
	Chassis	aluminium	
	Patch plate	brass, tin-plated	
	Seals	thermoplastic elastomer	

\* left-/right-hand circular polarisation

## > Key Applications

- Gate applications for goods registration
- Logistics
- Vehicle registration
- Bulk and single-tag applications

## > Mounting



### NOTICE

Risk of damage to property!

- ▶ Make sure that the screw is only screwed in max. 10 mm deep into the housing ( $M_{max} = 5 \text{ Nm}$ ).

- Four M6 drill holes at intervals of 100 x 100 mm

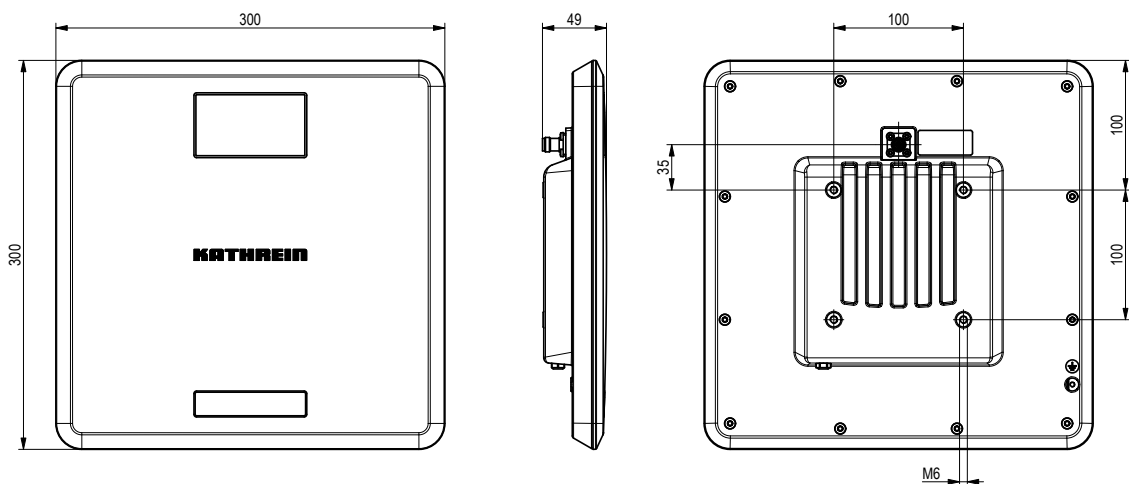
## > Accessories (Optional)

You can find all accessories at <http://www.kathrein-solutions.com/products/hardware/accessories>.

## > Note

It is only possible to operate the antenna in conjunction with a ©KRAI reader.

## > Dimensions



## > Features

- Kathrein smart-shelf technology in a robust housing
- for applications in radiated near field, suitable for static tag identification
- thin design
- read range up to 5 m
- very homogenous reading field
- extremely high front-to-back ratio

The WRA 6060 antenna has been developed for applications in the area of point of sale, smart shelf applications and Kanban solutions. The antenna is characterised by an extremely homogeneous read zone which is emitted by the high front-to-back ratio. Therefore, it is suitable for static detection of multiple transponders. Due to its thin design, the antenna can be integrated into different applications.



## > General Specifications

Order No.		52010423	52010424
Type		WRA 6060 Antenna Unit	WRA 6060 Antenna Unit
Frequency range	[MHz]	865–868	902–928
©KRAI		–	–
LED visualisation		–	–
Polarisation, circular			RHCP*
Antenna gain	[dBiC]	typ. 5.5 (at 866 MHz)	typ. 5.5 (at 915 MHz)
Axial ratio	[dB]		typ. 1
VSWR			typ. 1.2:1
Front-to-back ratio	[dB]		> 19
Impedance	[Ohm]		50
Max. input power	[dBm]		+30 (at antenna port) (FCC15.247)
Max. radiated power	[dBm]	+33 ERP (ETSI EN 302 208)	+32.5 EIRP (FCC15.247)
Far-field half-power beam width	[°]		60
Connection			TNC female
Weight	[kg]		1.7
Degree of protection			IP67
Operating temperature range	[°C]		–40 to +70
Storage temperature range	[°C]		–40 to +85
Dimensions (L x W x H)	[mm]		300 x 300 x 49
Package size (L x W x H)	[mm]		approx. 350 x 350 x 80
Material			
	Antenna cover	tough, weather-resistant polymer blend, colour: RAL7035	
	Chassis	aluminium, powder coated	
	Seals	thermoplastic elastomer	

\* right-hand circular polarisation

## > Key Applications

- Logistics
- Vehicle registration
- Bulk and single-tag applications
- Point of sale

## > Mounting



### NOTICE

**Risk of damage to property!**

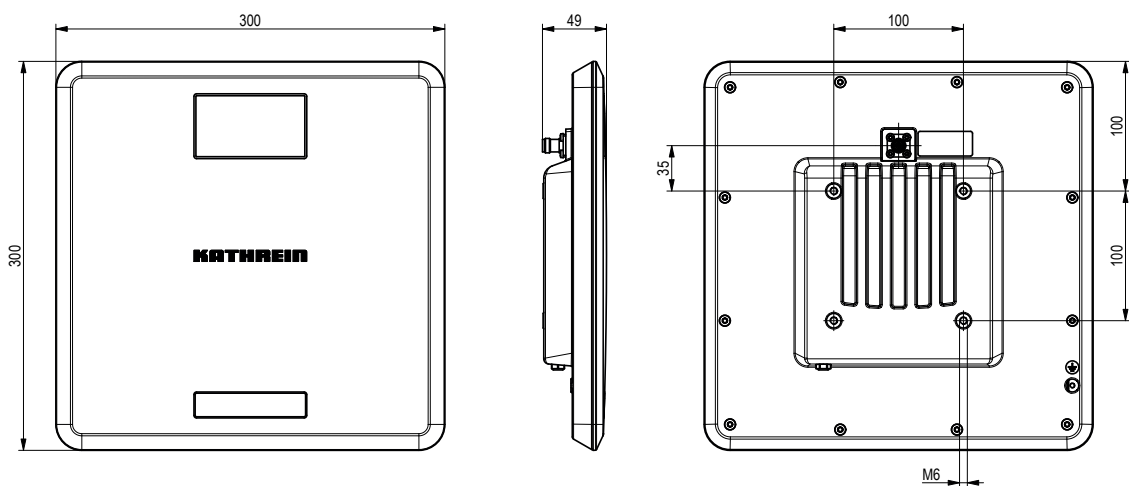
- ▶ Make sure that the screw is only screwed in max. 10 mm deep into the housing ( $M_{max} = 5 \text{ Nm}$ ).

- Four M6 drill holes at intervals of 100 x 100 mm

## > Accessories (Optional)

You can find all accessories at <http://www.kathrein-solutions.com/products/hardware/accessories>.

## > Dimensions





In addition to the compact, flat dimensions, the antennas' highly selective reading zone is a major feature. The progress for the the new smart-shelf antennas has been done with the FAKRA connectors, known from the automotive industry. These robust and vibration-resistant connectors are coded and lock in place with a click.

With these FAKRA connectors, the smart-shelf antennas are connected in seconds, which makes installation in large rollout projects considerably easier and thus reduces installation costs.

Another advantage, especially in large installations, is the cascading feature of the smart-shelf antennas, supported by the Kathrein @KRAI RFID antenna interface. With this feature, up to 32 smart-shelf antennas can be cascaded and controlled centrally via only one reader.



## > Features

- robust and vibration-resistant FAKRA connector
- easy to install or retrofit
- strong separation of read/no-read zone
- extremely thin design
- near-field applications
- read range: 0–3 m
- very high, homogenous detection field
- optional cascade function for up to 32 antennas

## > General Specifications

Order No.		52010523	52010524	52010525	52010526
Type		SMSH Antenna ETSI	SMSH @KRAI Antenna ETSI	SMSH Antenna FCC	SMSH @KRAI Antenna FCC
Frequency range	[MHz]	865–868		902–928	
@KRAI		–	cascading	–	cascading
Protection cover		✓			
Read range	[m]	0–3			
Polarisation		circular, RHCP*			
Antenna gain	[dBiC]	typ. 5	typ. 4.5	typ. 5	typ. 4.5
Axial ratio	[dB]	typ. 2			
Impedance	[Ohm]	50			
VSWR		typ. 1.3:1			
Front-to-back ratio	[dB]	> 20			
Max. input power	[dBm]	+30			
Far-field half-power beam width	[°]	60/60			
Connection		input: FAKRA output: FAKRA			
Weight	[kg]	1.0			
Degree of protection		indoor use only			
Operating temperature range	[°C]	–20 to +55			
Storage temperature range	[°C]	–40 to +85			
Dimensions (L x W x H)	[mm]	340 x 330 x 20			
Package size (L x W x H)	[mm]	approx. 345 x 350 x 35			
Material		thermoplastic radome, UV-resistant, fibreglass-epoxy resin			

## > Key Applications

- eKanBan applications
- Point of sales verification
- Asset registration
- Book-and-collect workstation

## > Deliverables

The following parts are items of delivery:

- SMSH-Antenna
- Protective Cover
- 6x Panhead screw Torx T20 M4x8 DIN7985
- 6x Washer 4.3 DIN 125
- 6x Bolt nut M4 ISO4032

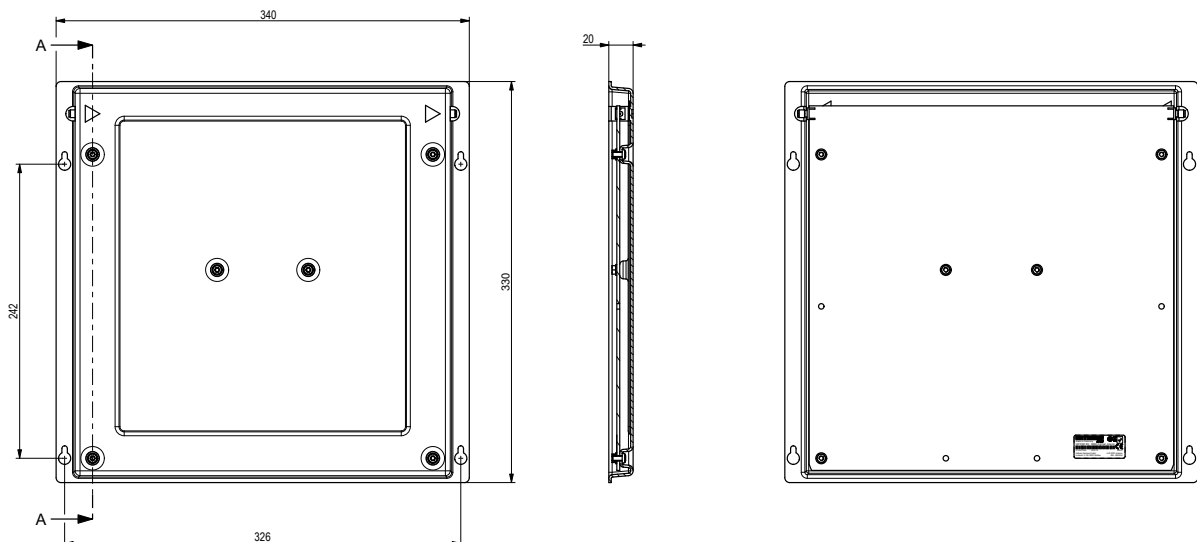
## > Accessories (Optional)

You can find all accessories at <https://www.kathrein-solutions.com/products/rfid/rfid-assecories>.

## > Mounting Options

- 10 through holes  $\varnothing$  4.5 mm for M4 screws to mount on wall/ceiling

## > Dimensions



## > Note

- Risk of material damage!
- ▶ Make sure that the depth at which the M6 screws are put into the backplane does not exceed 8 mm.

## > Features

- New compact design for ruggedized environmental applications, but also for shop floor use cases
- Mounting kit for pole mount or gantry mount included
- Prepared for 3D mount kit (100 x 100mm)
- Excellent axial ratio for homogeneous reception of transponders in any position
- Read range\*: up to 20 m (\* depending on tag properties, environment and requirements)
- Ideal solution for portal applications and vehicle identification
- Different far field half-power beam widths in azimuth and elevation plane
- Suitable for bulk and single tag applications
- High IP67 degree of protection, suitable for outdoor use



## > General Specifications

Order No.		52010583	52010584
Type		WRA 3070 Antenna Unit ETSI	WRA 3070 Antenna Unit FCC
Frequency range	[MHz]	865–868 (865–867 for India)	902–928
©KRAI			–
Polarisation			circular
Antenna gain	[dBi]	typ. 12	typ. 11.5
VSWR			typ. 1.2:1
Front-to-back ratio	[dB]		> 20
Impedance, antenna port	[Ohm]		50
Max. radiated power	[dBm]	+33 e.r.p. (ETSI EN 302 208)	+36 EIRP (FCC15.247)
Far-field half-power beam width (in the recommended installation position as shown in the picture)	[°]		30 horizontal 65 vertical
Connection			TNC * (female)
Weight	[kg]		4.5
Degree of protection			IP67
Operating temperature range	[°C]		–40 to +70
Storage temperature range	[°C]		–40 to +85
Dimensions (L x W x H)	[mm]		610 x 320 x 77
Package size (L x W x H)	[mm]		642 x 380 x 150
Material			
	Antenna cover	tough, weather-resistant polymer blend, colour: RAL7035	
	Chassis	aluminium, powder coat	
	Seals	thermoplastic elastomer	

\*) For vertical pole mounting with the included mousing brackets, we recommend using the right-angle TNC-TNC adapter 52010598.

## > Key Applications

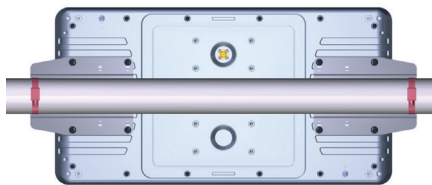
- Automated vehicle identification:
  - Electronic toll collect
  - Tolling plaza
  - Lane selective free-flow traffic
- Railway identification:
  - Supply Device Management
  - Maintenance

## > Accessories (Optional)

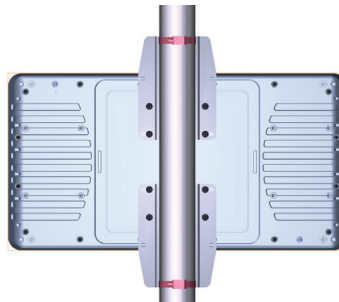
For more information about accessories, go to <https://www.kathrein-solutions.com/products/rfid/rfid-accessories>.

## > Mounting (with the brackets supplied)

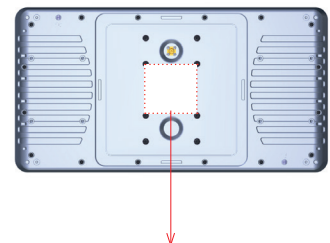
Horizontal Mounting on Gantry:



Vertical Mounting on Pole:



Screw holes for 3D mount kit:



- Pipe and hose clamps not included in delivery.
- Pipe and hose clamps not included in delivery.
- For vertical pole mounting with the included mounting brackets, we recommend using the right-angle TNC-TNC adapter 52010598.
- Install the antenna on the 3D mounting kit 52010351, using four M6 threaded bolts at intervals of 100 x 100 mm.

## > Dimensions [mm]

