ERICSSON

Ericsson Antenna Technology Germany GmbH • Klepperstraße 26 • 83026 Rosenheim • Germany

Kathrein Mobile Communication – now part of Ericsson

Ericsson Antenna Technology Germany GmbH
Klepperstraße 26
83026 Rosenheim
Germany

Phone: +49 8031 184-0
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www.kathrein.com

Company Responsible:
Markus Feld

VAT Reg. No.: DE 324 954 029
Tax ID No.: 103/5725/3930

BNP Paribas
IBAN: NL05 BNPA 0227 7141 56
BIC: BNPANL2AXXX

Zum 1. Oktober 2019 ist die Kathrein Mobile Communication die Ericsson Antenna Technology Germany GmbH (im Folgenden auch „EAG"), eine mit Gesellschaftsvertrag vom 16. Januar 2019 neu gegründete Gesellschaft mit beschränkter Haftung (GmbH) nach deutschem Recht mit Sitz in Rosenheim (Geschäftsanschrift: Prinzenallee 21, 40549 Düsseldorf). EAG ist im Handelsregister B des Amtsgerichts Traunstein unter der Nr. HRB 27988 eingetragen und hat ein Stammkapital von derzeit EUR 2.000.000,00. EAG wird vertreten durch den Geschäftsführer Markus Feld. Alleinige Gesellschafterin von EAG ist die Telefonaktiebolaget LM Ericsson (publ), eine börsennotierte Aktiengesellschaft nach schwedischem Recht.

Die neuen Firmendaten lauten seither wie folgt:
Ericsson Antenna Technology Germany GmbH
Klepperstraße 26
83026 Rosenheim, Germany
UST-Ident-Nr: DE 324 954 029
Steuer-Nr.: 103/5725/3930

As of 1 October 2019, Kathrein Mobile Communication is Ericsson Antenna Technology Germany GmbH (hereinafter also referred to as "EAG"), a limited liability company under German law, newly established by articles of association dated 16 January 2019, with its head office in Rosenheim (business address: Prinzenallee 21, 40549 Düsseldorf, Germany). EAG is registered in the commercial register, section B, of Amtsgericht Traunstein (district court Traunstein) under the number HRB 27988 and has a share capital of currently EUR 2,000,000. EAG is represented by managing director Markus Feld. The sole shareholder of EAG is Telefonaktiebolaget LM Ericsson (publ), a listed stock corporation under Swedish law.

The new company data are as follows:
Ericsson Antenna Technology Germany GmbH
Klepperstraße 26
83026 Rosenheim, Germany
VAT Reg. No.: DE 324 954 029
Tax ID No.: 103/5725/3930

9360000644

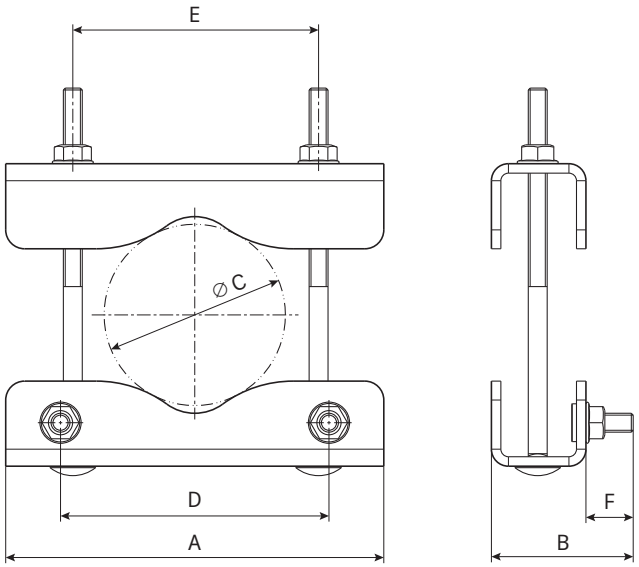
Read more at: ericsson.com/en/networks/kathrein

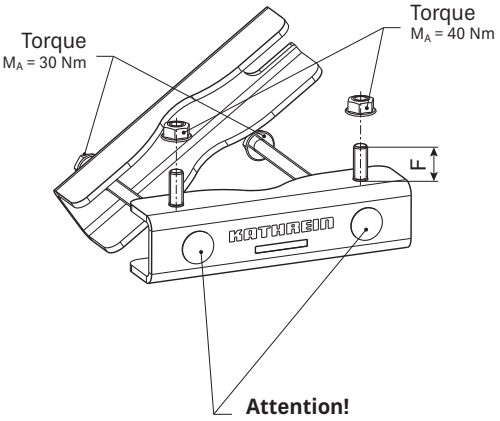
Mounting Hardware
Clamps
(Wind Load Category “XM”)

KATHREIN

Clamps 55–115mm XM

Type No.		85010111
Suitable for mast diameter	mm inches	55 – 115 2.2 – 4.5
Scope of supply		2 x clamps
Material – Clamp – Screws – Nuts		Hot-dip galvanized steel Hot-dip galvanized steel Stainless steel
Weight	kg lb	4.5 9.9





Attention!
Square of the screw must be positioned in the square hole before tightening the nut.

	A	B	C	D	E	F
mm inches	200 7.9	75 2.9	55 – 115 2.2 – 4.5	142 5.6	130 5.1	(25) (1)

Please note: Kathrein does not recommend to use counter nuts.

Any previous data sheet issues have now become invalid.

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10-Port Antenna	R1	Y1	Y2	Y3	Y4
Frequency Range	698–960	1695–2690	1695–2690	1427–2690	1695–2690
Dual Polarization	X	X	X	X	X
HPBW	65°	65°	65°	65°	65°
Gain	16dBi	16dBi	16dBi	16.5dBi	16.5dBi
Adjust. Electr. DT	2°–12°	2°–14°	2°–14°	2°–14°	2°–14°

set by *FlexRET*

KATHREIN

AISG Antenna Interface Standards Group

10-Port Antenna LB/4HB 2.0m 65° | 698–960 16dBi | 3x1695–2690 16.5dBi | 1427–2690 16.5dBi

Type No.		80011891			
Left side, lowband		R1, connector 1–2			
		698–960			
Frequency Range	MHz	698 – 806	791 – 862	824 – 894	880 – 960
Gain at mid Tilt	dBi	15.5	15.9	16.1	16.3
Gain over all Tilts	dBi	15.4 ± 0.6	15.8 ± 0.6	16.0 ± 0.6	16.2 ± 0.5
Horizontal Pattern:					
Azimuth Beamwidth	°	67 ± 3.0	64 ± 2.7	62 ± 2.3	63 ± 3.4
Front-to-Back Ratio, Total Power, ± 30°	dB	> 21	> 23	> 25	> 28
Vertical Pattern:					
Elevation Beamwidth	°	10.7 ± 0.6	9.9 ± 0.5	9.5 ± 0.4	9.2 ± 0.5
Electrical Downtilt continuously adjustable	°	2.0 – 12.0			
Tilt Accuracy	°	< 0.4	< 0.4	< 0.5	< 0.5
First Upper Side Lobe Suppression	dB	> 18	> 22	> 21	> 19
Cross Polar Isolation	dB	> 30			
Port to Port Isolation	dB	> 30 (R1 // Y1, Y2, Y3, Y4)			
Max. Effective Power per Port	W	400 (at 50 °C ambient temperature)			
Max. Effective Power Ports R1	W	800 (at 50 °C ambient temperature)			

Values based on NGMN-P-BASTA (version 10.0) requirements.

936.0000155b | ngmn 04.32.01.00 | Subject to alteration.

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Left side, lower highband		Y1, connector 3–4				
				1695–2690		
Frequency Range	MHz	1695 – 1880	1850 – 1990	1920 – 2180	2300 – 2400	2490 – 2690
Gain at mid Tilt	dBi	15.2	15.8	15.9	15.6	16.4
Gain over all Tilts	dBi	15.2 ± 0.6	15.7 ± 0.5	15.8 ± 0.4	15.6 ± 0.6	16.3 ± 0.8
Horizontal Pattern:						
Azimuth Beamwidth	°	66 ± 4.5	63 ± 3.5	62 ± 2.9	64 ± 5.8	56 ± 5.5
Front-to-Back Ratio, Total Power, ± 30°	dB	> 23	> 25	> 25	> 25	> 25
Vertical Pattern:						
Elevation Beamwidth	°	10.8 ± 0.9	10.2 ± 0.5	9.8 ± 0.8	8.5 ± 0.4	7.8 ± 0.6
Electrical Downtilt continuously adjustable	°	2.0 – 14.0				
Tilt Accuracy	°	< 0.4	< 0.4	< 0.4	< 0.3	< 0.4
First Upper Side Lobe Suppression	dB	> 19	> 20	> 19	> 17	> 15
Cross Polar Isolation	dB	> 27, typically 28				
Port to Port Isolation	dB	> 30 (Y1 // R1, Y2, Y3, Y4)				
Max. Effective Power per Port	W	200 (at 50 °C ambient temperature)				
Max. Effective Power Ports Y1	W	400 (at 50 °C ambient temperature)				

Values based on NGMN-P-BASTA (version 10.0) requirements.

Left side, upper highband		Y2, connector 5–6				
				1695–2690		
Frequency Range	MHz	1695 – 1880	1850 – 1990	1920 – 2180	2300 – 2400	2490 – 2690
Gain at mid Tilt	dBi	16.0	16.4	16.3	15.7	16.0
Gain over all Tilts	dBi	15.9 ± 0.8	16.3 ± 0.7	16.2 ± 0.7	15.6 ± 0.5	15.8 ± 0.7
Horizontal Pattern:						
Azimuth Beamwidth	°	59 ± 5.4	57 ± 3.9	58 ± 5.6	62 ± 4.1	65 ± 7.6
Front-to-Back Ratio, Total Power, ± 30°	dB	> 23	> 26	> 26	> 25	> 26
Vertical Pattern:						
Elevation Beamwidth	°	9.4 ± 0.5	8.8 ± 0.4	8.3 ± 0.7	7.4 ± 0.4	6.6 ± 0.5
Electrical Downtilt continuously adjustable	°	2.0 – 14.0				
Tilt Accuracy	°	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
First Upper Side Lobe Suppression	dB	> 16	> 17	> 18	> 19	> 14
Cross Polar Isolation	dB	> 27, typically 28				
Port to Port Isolation	dB	> 30 (Y2 // R1, Y1, Y3, Y4)				
Max. Effective Power per Port	W	200 (at 50 °C ambient temperature)				
Max. Effective Power Ports Y2	W	400 (at 50 °C ambient temperature)				

Values based on NGMN-P-BASTA (version 10.0) requirements.

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Right side, lower highband		Y3, connector 7–8						
					1427–2690			
Frequency Range	MHz	1427 – 1496	1492 – 1518	1695 – 1880	1850 – 1990	1920 – 2180	2300 – 2400	2490 – 2690
Gain at mid Tilt	dBi	14.6	14.8	15.6	16.0	16.3	16.5	16.9
Gain over all Tilts	dBi	14.6 ± 0.3	14.8 ± 0.3	15.5 ± 0.5	15.9 ± 0.5	16.2 ± 0.6	16.4 ± 0.7	16.7 ± 0.9
Horizontal Pattern:								
Azimuth Beamwidth	°	72 ± 6.7	66 ± 8.0	66 ± 4.9	64 ± 5.1	65 ± 4.4	68 ± 2.3	61 ± 5.9
Front-to-Back Ratio, Total Power, ± 30°	dB	> 25	> 25	> 24	> 25	> 25	> 28	> 25
Vertical Pattern:								
Elevation Beamwidth	°	12.3 ± 0.6	12.5 ± 0.5	10.5 ± 0.6	9.8 ± 0.5	9.3 ± 0.7	8.1 ± 0.5	7.2 ± 0.4
Electrical Downtilt continuously adjustable	°	2.0 – 14.0						
Tilt Accuracy	°	< 0.7	< 0.7	< 0.6	< 0.3	< 0.3	< 0.4	< 0.5
First Upper Side Lobe Suppression	dB	> 14	> 15	> 16	> 17	> 18	> 19	> 14
Cross Polar Isolation	dB	> 27, typically 28						
Port to Port Isolation	dB	> 30 (Y3 // R1, Y1, Y2, Y4)						
Max. Effective Power per specified Band and Port	W	150 (at 50 °C ambient temperature)		200 (at 50 °C ambient temperature)			120 (at 50 °C ambient temperature)	
Max. Effective Power per Port	W	200 (at 50 °C ambient temperature)						
Max. Effective Power Ports Y3	W	400 (at 50 °C ambient temperature)						

Values based on NGMN-P-BASTA (version 10.0) requirements.

Right side, upper highband		Y4, connector 9–10				
				1695–2690		
Frequency Range	MHz	1695 – 1880	1850 – 1990	1920 – 2180	2300 – 2400	2490 – 2690
Gain at mid Tilt	dBi	15.9	16.2	16.5	16.9	16.5
Gain over all Tilts	dBi	15.8 ± 0.6	16.1 ± 0.3	16.4 ± 0.5	16.8 ± 0.5	16.3 ± 0.6
Horizontal Pattern:						
Azimuth Beamwidth	°	63 ± 2.6	62 ± 2.6	61 ± 2.1	58 ± 2.9	58 ± 3.3
Front-to-Back Ratio, Total Power, ± 30°	dB	> 25	> 25	> 25	> 25	> 21
Vertical Pattern:						
Elevation Beamwidth	°	9.6 ± 0.6	9.1 ± 0.4	8.6 ± 0.5	7.7 ± 0.4	6.7 ± 0.5
Electrical Downtilt continuously adjustable	°	2.0 – 14.0				
Tilt Accuracy	°	< 0.4	< 0.4	< 0.5	< 0.5	< 0.4
First Upper Side Lobe Suppression	dB	> 18	> 18	> 17	> 17	> 16
Cross Polar Isolation	dB	> 27, typically 28				
Port to Port Isolation	dB	> 30 (Y4 // R1, Y1, Y2, Y3)				
Max. Effective Power per Port	W	200 (at 50 °C ambient temperature)				
Max. Effective Power Ports Y4	W	400 (at 50 °C ambient temperature)				

Values based on NGMN-P-BASTA (version 10.0) requirements.

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Electrical specifications, all ports		
Impedance	Ω	50
VSWR		< 1.5
Return Loss	dB	> 14
Interband Isolation	dB	> 30
Passive Intermodulation	dBc	< –153 (2 x 43 dBm carrier)*
Polarization	°	–45, +45
Max. Effective Power for the Antenna	W	1000 (at 50 °C ambient temperature)

Values based on NGMN-P-BASTA (version 10.0) requirements.
* not applicable for L-band

Mechanical specifications		
Input		10 x 4.3-10 female
Connector Position		bottom
Adjustment Mechanism		FlexRET, continuously adjustable
Wind load (at Rated Wind Speed: 150 km/h)	N | lbf	Frontal: 905 | 203 Maximal: 905 | 203
Max. Wind Velocity	km/h mph	241 150
Height / Width / Depth	mm inches	1999 / 378 / 164 78.7 / 14.9 / 6.5
Category of Mounting Hardware		XM (X-Medium)
Weight	kg lb	33.2 / 37.7 (clamps incl.) 73.2 / 83.1 (clamps incl.)
Packing Size	mm inches	2200 / 412 / 255 86.6 / 16.2 / 10.0
Scope of Supply		Panel, FlexRET and clamps for 55–115 mm | 2.2–4.5 inches diameter

Accessories (order separately if required)

Type No.	Description	Remarks mm | inches	Weight approx. kg | lb	Units per antenna
85010097	2 clamps	Mast diameter: 110–220 | 4.3–8.7	9.4 | 20.7	1
85010110	1 downtilt kit	Downtilt angle: 0°–12°	8.5 | 18.7	1
86010154	Site Sharing Adapter	3-way (see figure below)	0.7 | 1.5	
86010155	Site Sharing Adapter	6-way (see figure below)	1.4 | 3.1	
86010162	Gender Adapter	Solely to be used in combination with the FlexRET module 86010153V01	0.045 | 0.099	1
86010163	Port Extender		0.16 | 0.35	1

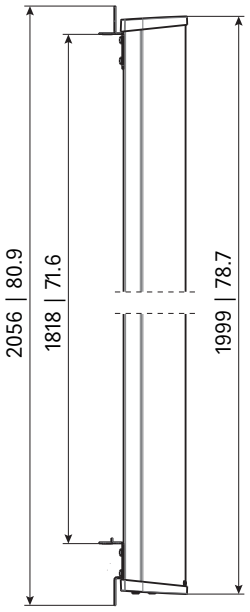
Accessories (included in the scope of supply)

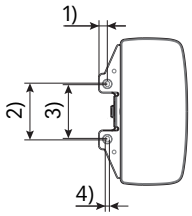
85010111	2 clamps	Mast diameter: 55–115 | 2.2–4.5	4.5 | 9.9	1
86010153V01	FlexRET			1

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.

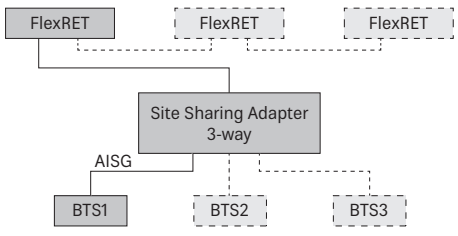




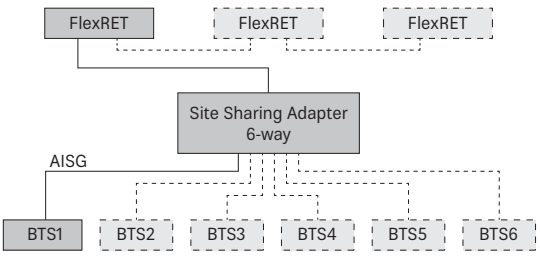
1) 22 | 0.9
2) 150 | 5.9
3) 142 | 5.6
4) 11 | 0.4

All dimensions in mm | inches

Configuration example with Site Sharing Adapter 86010154



Configuration example with Site Sharing Adapter 86010155



For more information please refer to the respective data sheets.

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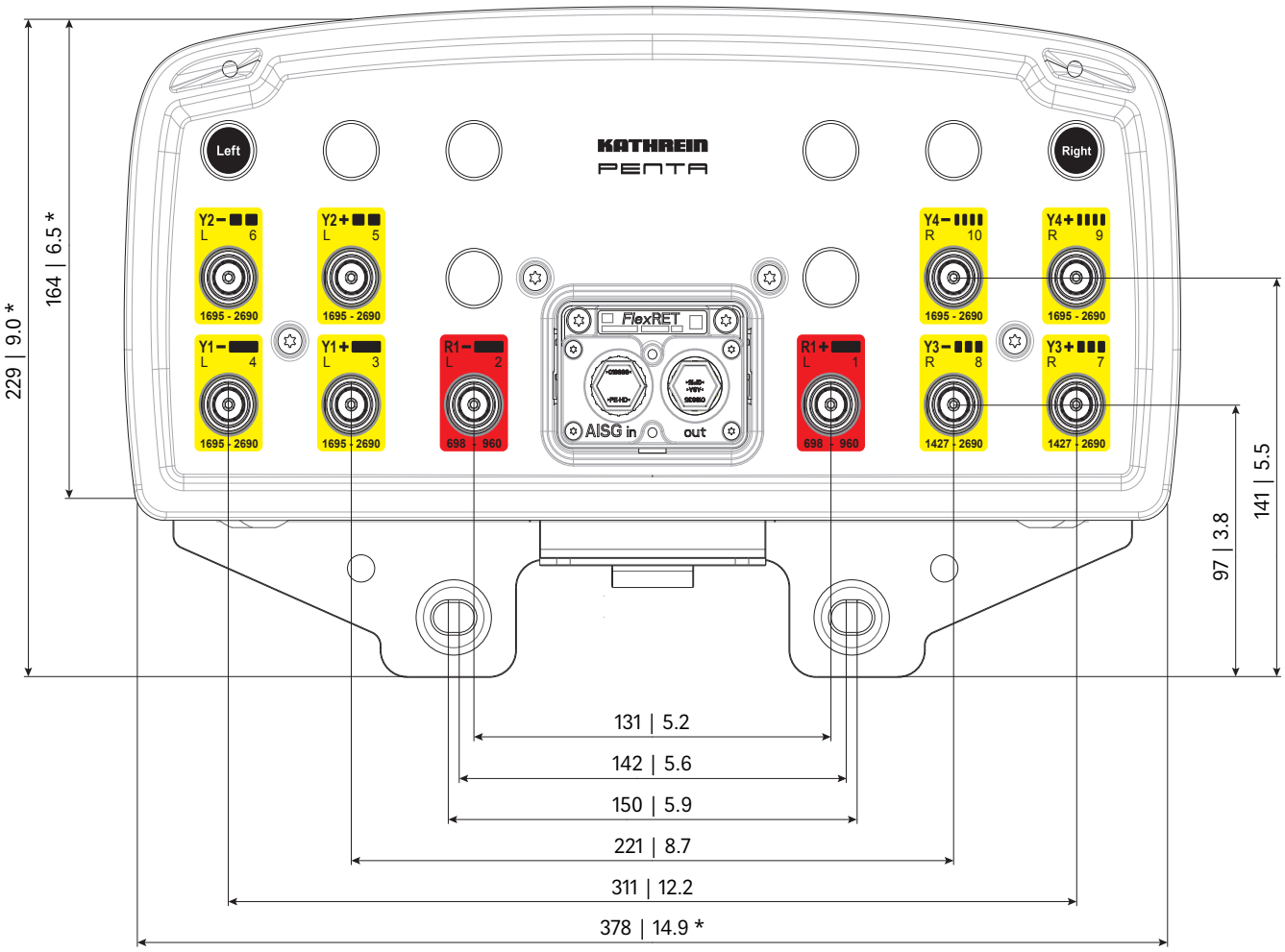
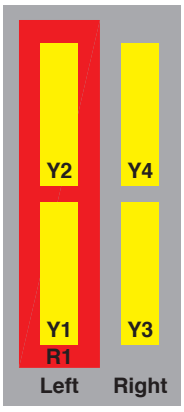
Layout of interface:



Bottom view
* Dimensions refer to radome
All dimensions in mm | inches

Correlation Table

Frequency range	Array	Connector / Ports
698–960 MHz	R1	1–2
1695–2690 MHz	Y1	3–4
1695–2690 MHz	Y2	5–6
1427–2690 MHz	Y3	7–8
1695–2690 MHz	Y4	9–10



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A flexible, integrated solution for adjusting the electrical downtilt of Kathrein FlexRET antennas.

- Compliant to 3GPP/AISG 2.0
- Single RETs or Multi RET displayed
- Two way antenna sharing feasibility
- Daisy Chain feasibility
- Pre-configured

Type No.		86010153V01
Protocols		compliant to 3GPP/AISG 2.0
Logical interface ex factory		3GPP/AISG 2.0
Operates as		Single RETs or Multi RET
Ex factory		Single RETs
Input voltage range	V	10 ... 30 (pin 6)
Power consumption	W	Typically < 1; < 10 (motor activated)
Connectors		2 x 8 pin connector according to IEC 60130-9; according to AISG-C 485 Daisy chain in: male; Daisy chain out: female
Hardware interfaces		RS 485A/B (pin 5, pin 3); power supply (pin 6); DC return (pin 7); according to AISG / 3GPP
Adjustment time (full range)	sec	40 (typically, depending on antenna type)
Adjustment cycles		> 50,000
Temperature range	°C	–40 ... +60
Protection class		IP 24 (installed)
Lightning protection		AISG interface (each pin) 2.5 kA (10/350 µs) 8 kA (8/20 µs) according to IEC 61000-4-5
Housing material		Profile: Aluminum anodized; cover: Aluminum die cast coated
Weight	g lb	350 0.77
Packing size (H x W x D)	mm inches	245 x 93 x 102 9.6 x 3.6 x 4
Dimensions (H x W x D)	mm inches	142 x 71 x 51 5.6 x 2.8 x 2

Please note:
If the Primary which controls the FlexRET system does not support the default ex-factory interface setting, then the FlexRET must be switched to the appropriate standard of the Primary before installation. Please contact Kathrein for further information.

If the FlexRET of an antenna has to be replaced, the FlexRET gets the information stored in the antenna after power on automatically. It is not necessary to configure the FlexRET manually.

Standards: EN 60950-1 (Safety)
EN 60950-22 (Safety – Equipment installed outdoor)
EN 55022 (Emission)
EN 55024 (Immunity)
ETS 300019-1-4 (Environmental)
UL 60950-1; 1st edition

EU-RED: Hereby, KATHREIN SE declares that the radio equipment type 86010153V01 is in compliance w+ith Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: http://www.kathrein.com

Certification: CE, FCC

Scope of supply: FlexRET

Optional: **Site Sharing Adapter** (86010154 or 86010155) to create independent logical interfaces at one antenna or site. Makes it possible to operate with more than one independent Node B.

Gender Adapter (86010162) to convert the AISG out (female) to an AISG in (male) port in order to operate one FlexRet with exactly 2 BTS.
Detailed information is given in the data sheet of the Gender Adapter.

Port Extender (86010163) to convert the existing AISG input and output in order to operate FlexRet with exactly 2 BTS while maintaining the daisy chain capability.
Detailed information is given in the data sheet of the Port Extender.

Please note:
In general, the addressing of the FlexRET is automatically performed. Only in case the FlexRET is manually addressed, the serial number has to be extended by the corresponding colour coding extension (e.g. CSG351234-**R1**). The respective information can be found on the site documentation which is included in the scope of supply.

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Startup of FlexRET

The FlexRET module included in the antenna is preconfigured with the following information: Antenna model no., Antenna Serial no., Antenna configuration data. After connecting a control cable and scanning the antenna line devices (ALD) the used primary (e.g. NodeB, ALC, etc.) will find the FlexRET. You only need to insert your additional data.

Connecting the control cables:

Connect a control cable to the daisy chain input of the FlexRET. The tightening torque for fixing the connector must be 0.5 – 1.0 Nm ('hand-tightened').
The connector should be tightened by hand or by a special torque screw driver (order no. 85010080).
See also data sheet for Kathrein AISG-cable (86010007, ...).
Please note: To ensure the tightness of the RET System, Kathrein recommend the use of Kathrein components only.
Please note: If the daisy chain output is not used, do not remove the protection cap.

For daisy chain operation, remove the protection cap and attach a control cable to interconnect with the daisy chain input of the subsequent FlexRET or external RCU.
Please note: Do not remove the protection cap on the daisy chain output of the last FlexRET or RCU device.

936.5204c | Subject to alteration.

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FCC – Statements

FCC § 15.19

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC § 15.105

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

—Reorient or relocate the receiving antenna.
—Increase the separation between the equipment and receiver.
—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
—Consult the dealer or an experienced radio/TV technician for help.

Canada CNR-Gen Section 7.1.3

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:(1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

ICES-003

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

FCC § 15.21 (Warning Statement)

[Any] changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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Compliance Information Statement
(Declaration of Conformity Procedure)

Responsible Party: Kathrein USA

Address: Greenway Plaza II, 2400 Lakesite Blvd. Suite 650, 75082 Richardson, Texas

Telephone: (+01)214 238 8800

Type of Equipment:

Model Name: FlexRET
FCC ID SP3-86010153