Current sensors CS300 / CS503
Mounting instructions
Capteurs de courant CS300 / CS503
Instructions de montage

Mounting CS300/CS503

01/02/02
Version 1.0

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SUMMARY | **SOMMAIRE**

Introduction:

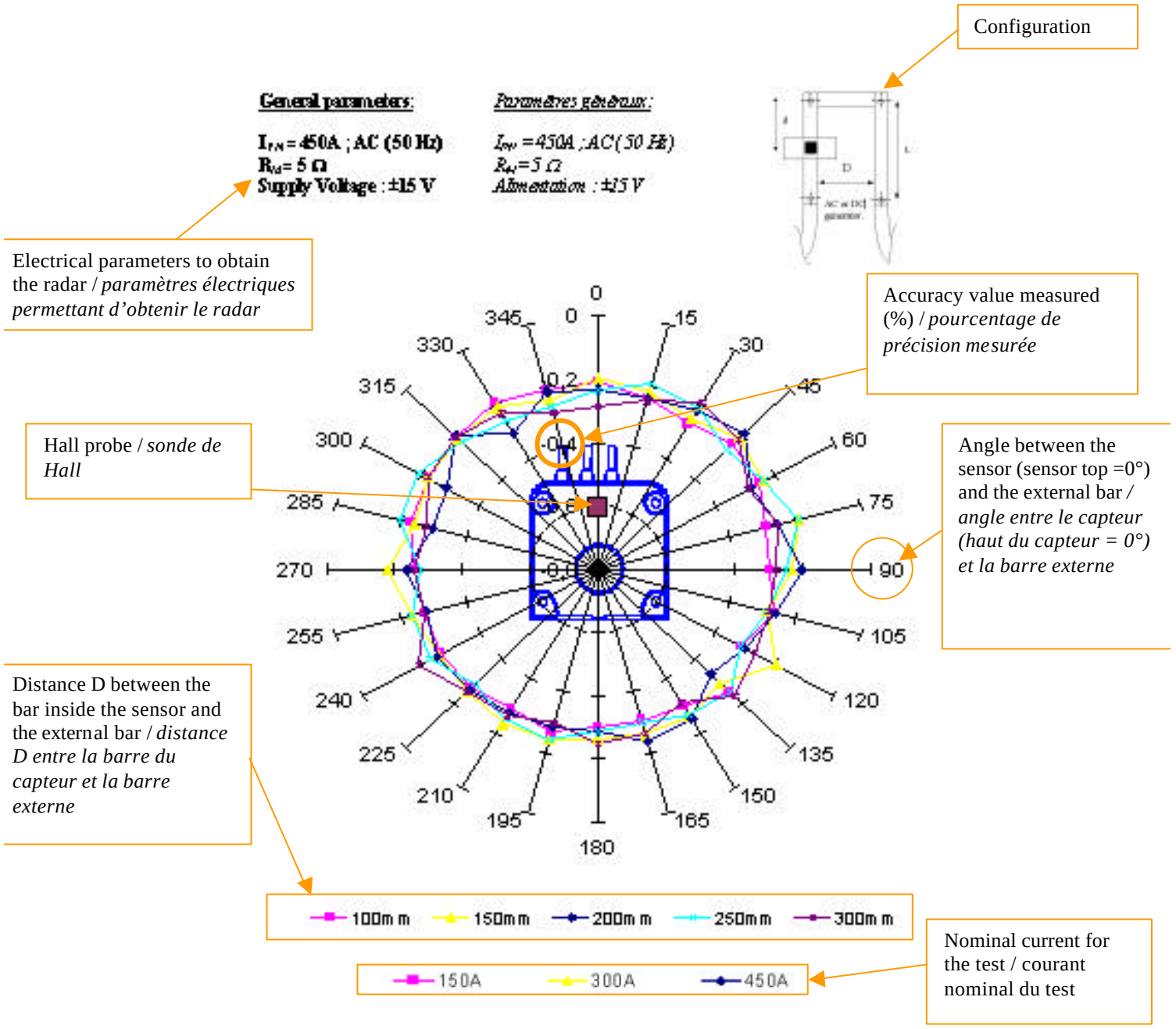
This document presents, following five mains configurations, the possible effects on the sensor measuring accuracy due to external magnetic fields.

Meaning of the "RADAR"

Introduction :

Ce document présente suivant 5 configurations les effets possibles des champs magnétiques extérieurs sur la précision des capteurs.

Explication du "RADAR"



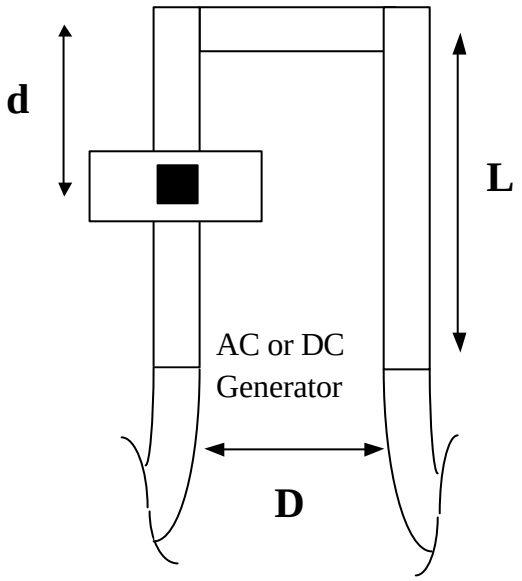
Configurations

Influence of the proximity of a conductor, on the sensor.

Influence de la proximité d'un conducteur sur le capteur.

1 - Parallel bar configuration

1 - Configuration barre parallèle



Parameters / *Paramètres*:

Sensor	D	L	d	Round bar
CS300 and CS503	Min=100mm Max=300mm	400mm 400mm	Around 200mm Around 200mm	Diameter=25mm Diameter=25mm

In such a configuration, for each 15° we measure the accuracy of the sensor. The result is given in the following pages.

Dans une telle configuration, tous les 15° nous mesurons la précision du capteur. Les résultats sont donnés dans les pages suivantes.

CS300: accuracy in parallel bar configuration

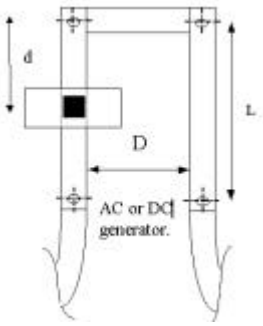
CS300: précision en configuration barre parallèle

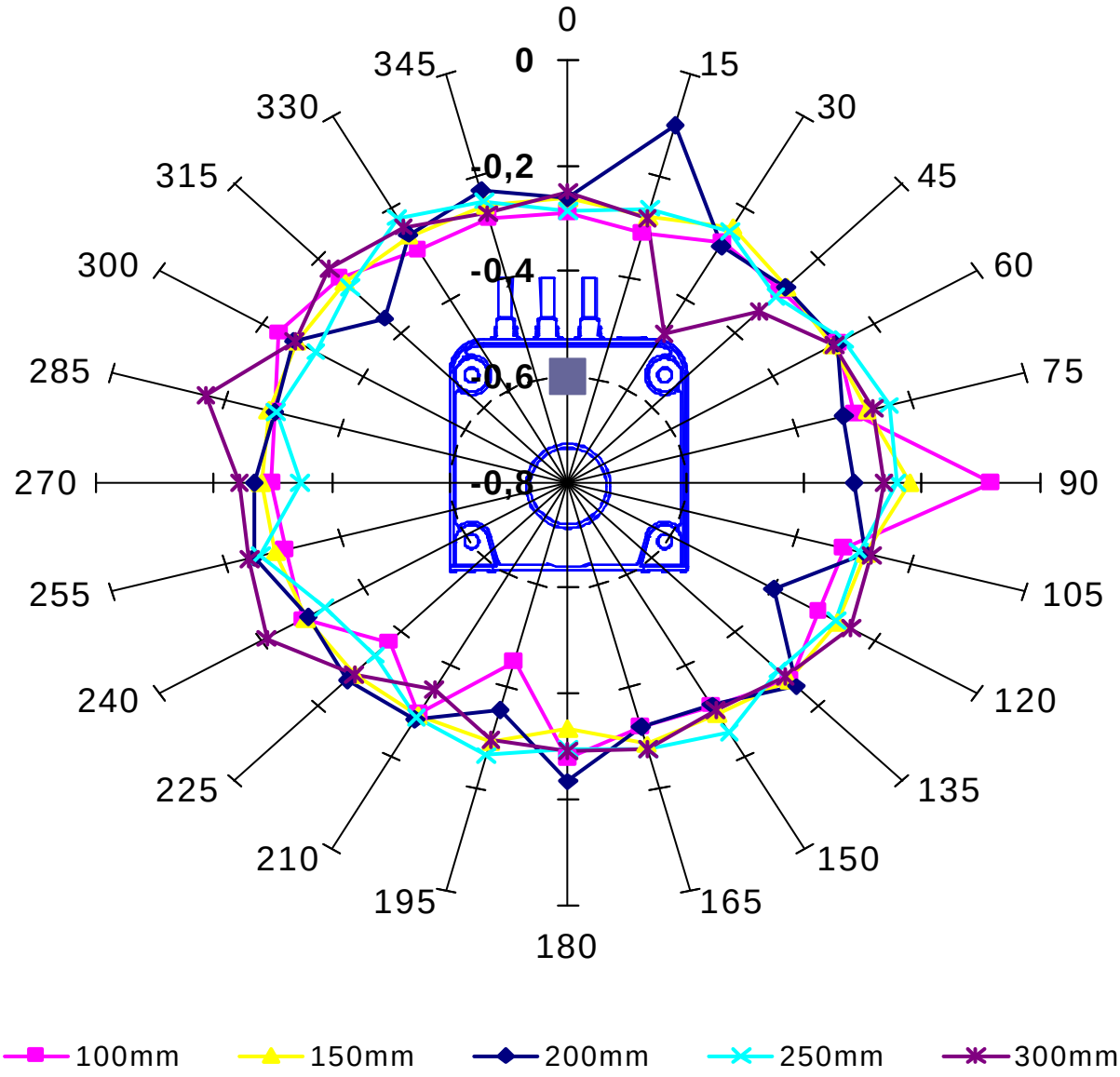
General parameters:

I_{PN} = 300A; AC (50 Hz)
R_M= 5 W
Supply Voltage: ±15 V

Paramètres généraux:

I_{PN} = 300A; AC (50 Hz)
R_M= 5 W
Alimentation : ±15 V





CS300: accuracy in parallel bar configuration

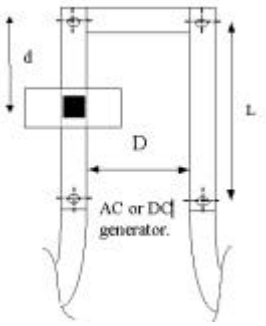
CS300: précision en configuration barre parallèle

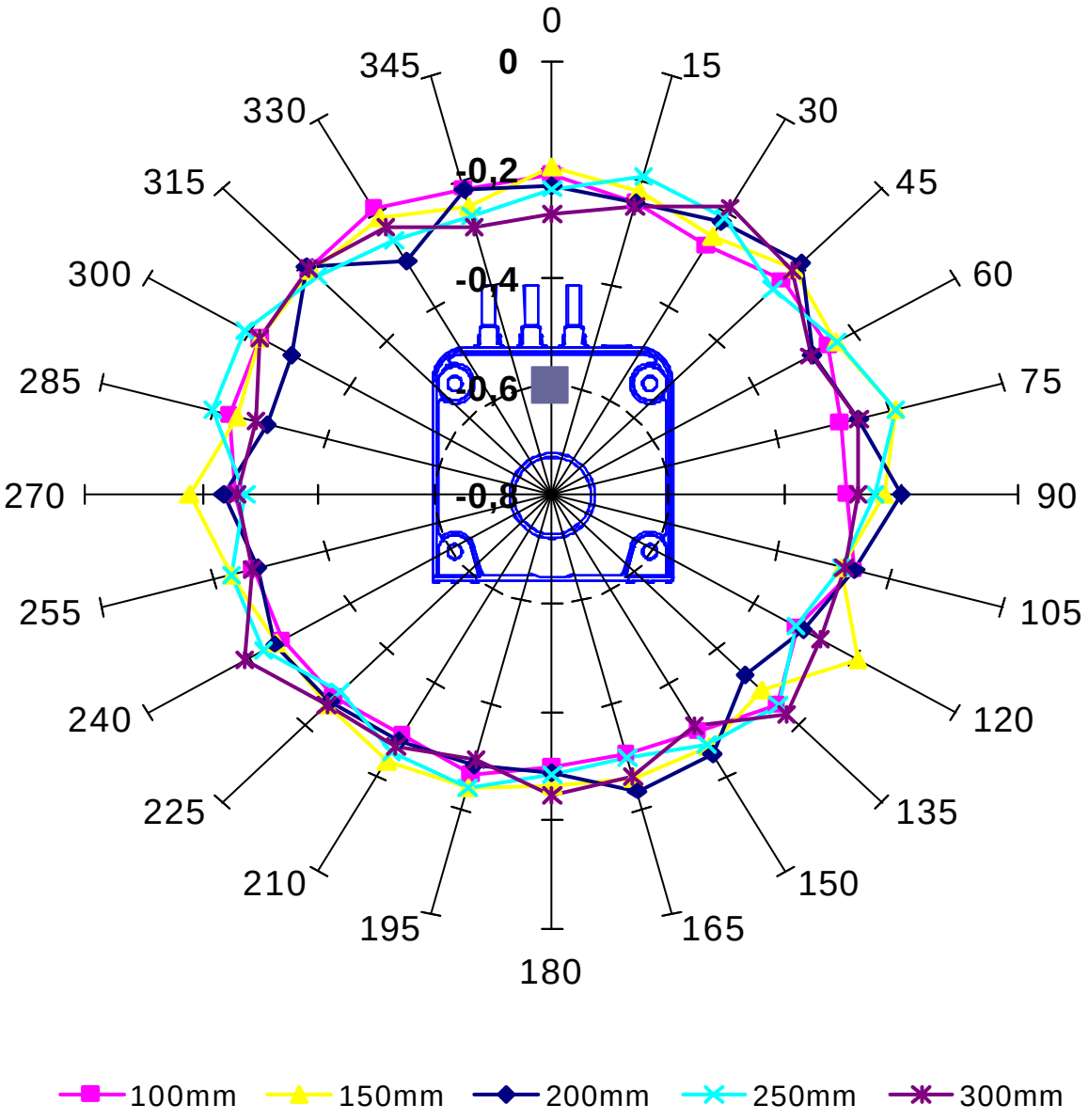
General parameters:

I_{PN} = 450A; AC (50 Hz)
R_M= 5 W
Supply Voltage: ±15 V

Paramètres généraux:

I_{PN} = 450A; AC (50 Hz)
R_M= 5 W
Alimentation : ±15 V





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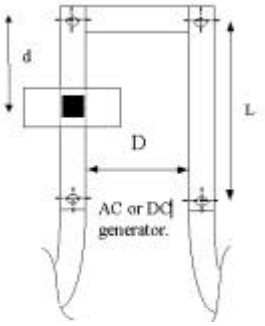
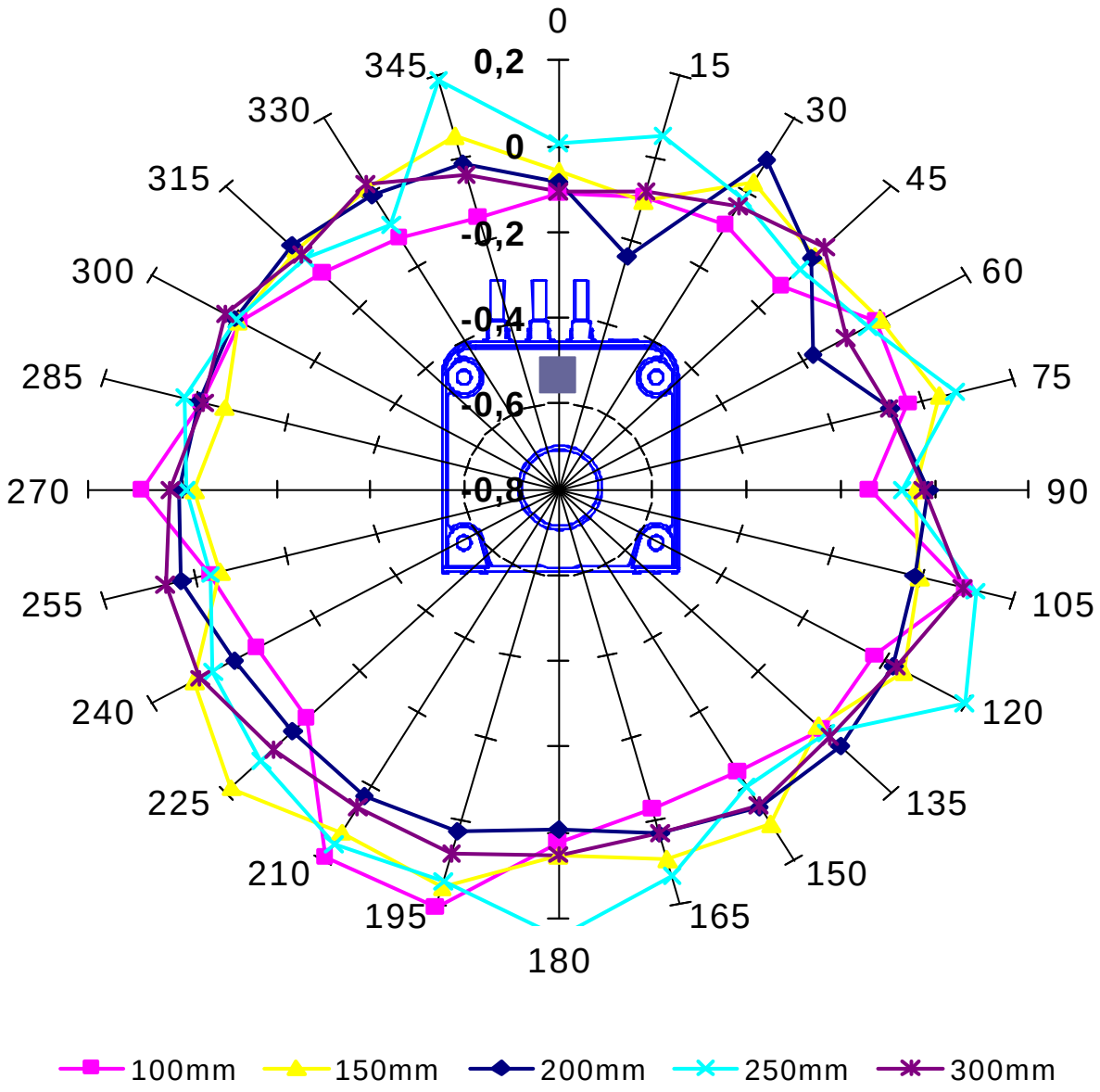
CS300: accuracy in parallel bar configuration

CS300: précision en configuration barre parallèle

General parameters: *Paramètres généraux:*

I_{PN} = 300A; DC *I_{PN} = 300A; DC*
R_M= 5 W *R_M= 5 W*
Supply Voltage: ±15 V *Alimentation: ±15 V*



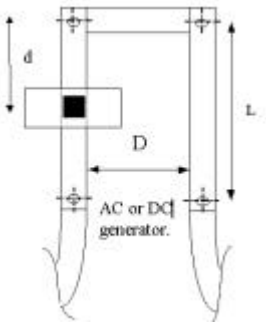


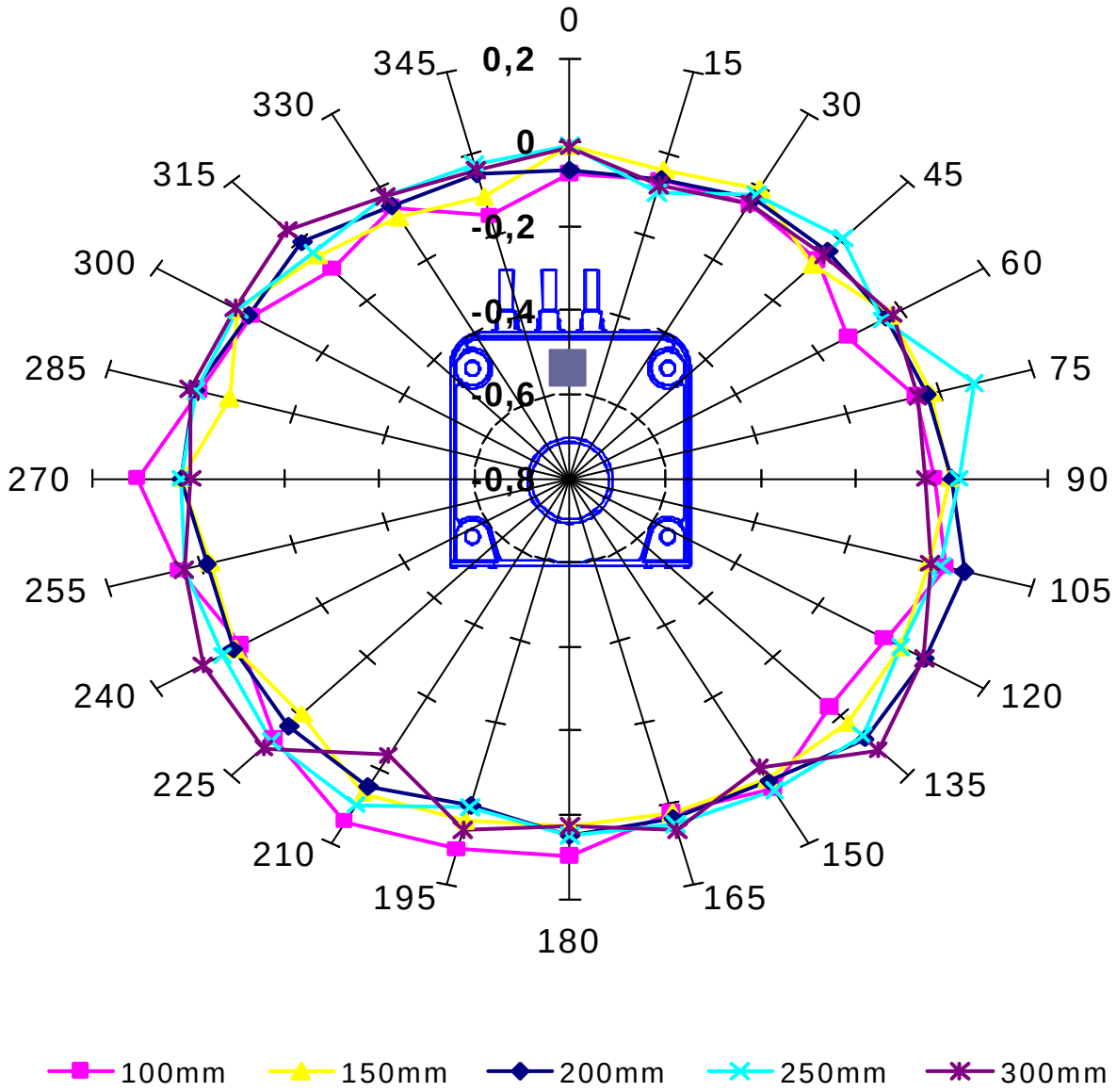
CS300: accuracy in parallel bar configuration

CS300: précision en configuration barre parallèle

General parameters: *Paramètres généraux:*

I_{PN} = 450A; DC *I_{PN} = 450A; DC*
R_M= 5 W *R_M= 5 W*
Supply Voltage: ±15 V *Alimentation: ±15 V*





CS503: accuracy in parallel bar configuration

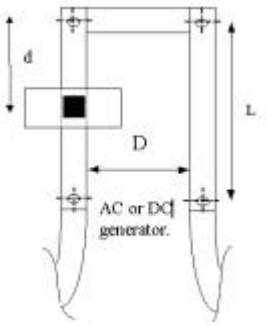
CS503: précision en configuration barre parallèle

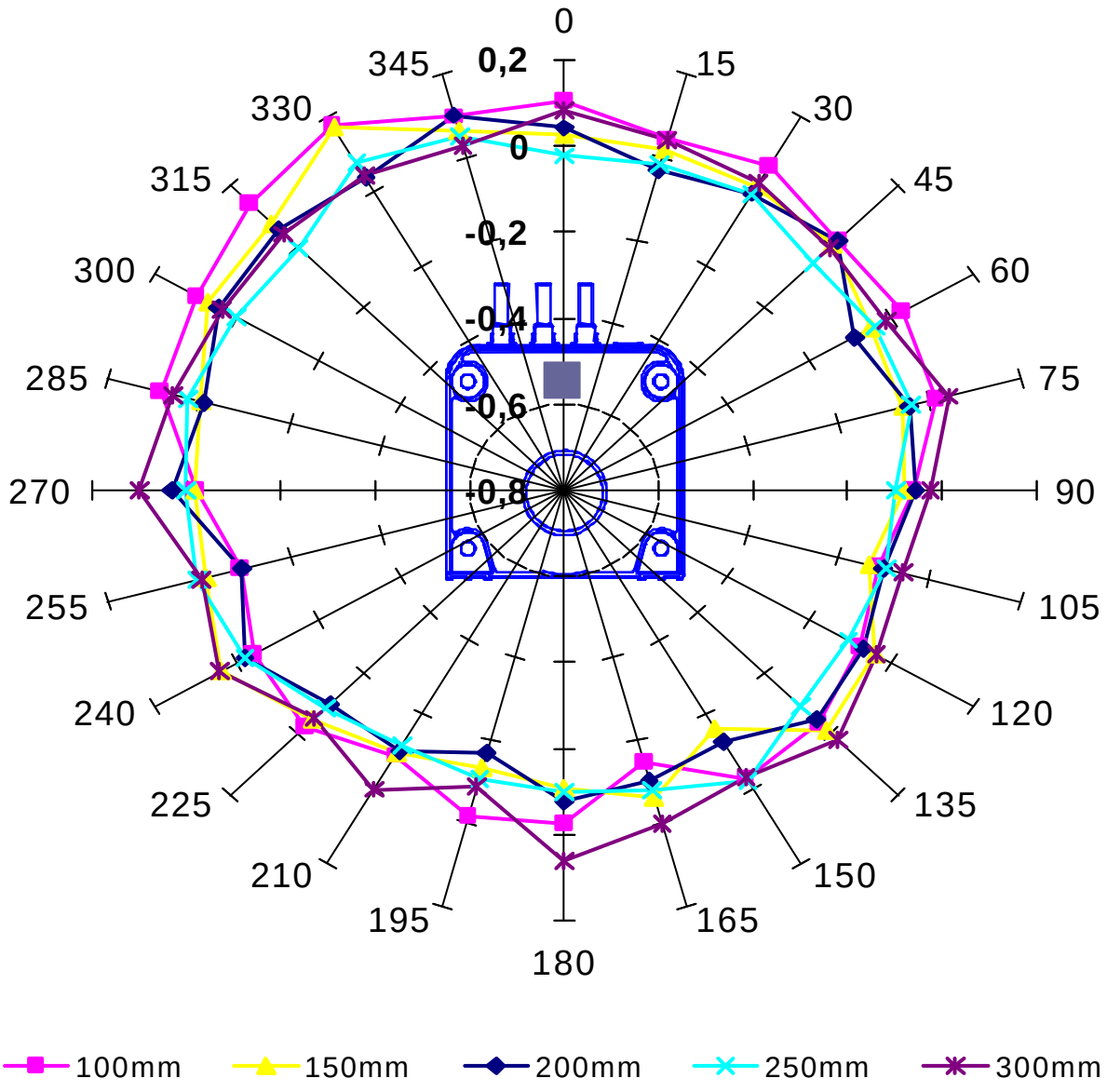
General parameters:

I_{PN} = 500A; AC (50 Hz)
R_M= 5 W
Supply Voltage: ±24 V

Paramètres généraux:

I_{PN} = 500A; AC (50 Hz)
R_M= 5 W
Alimentation: ±24 V



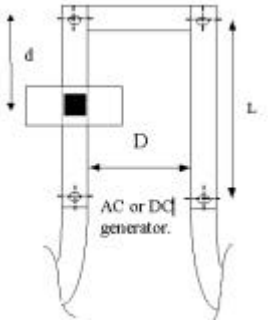


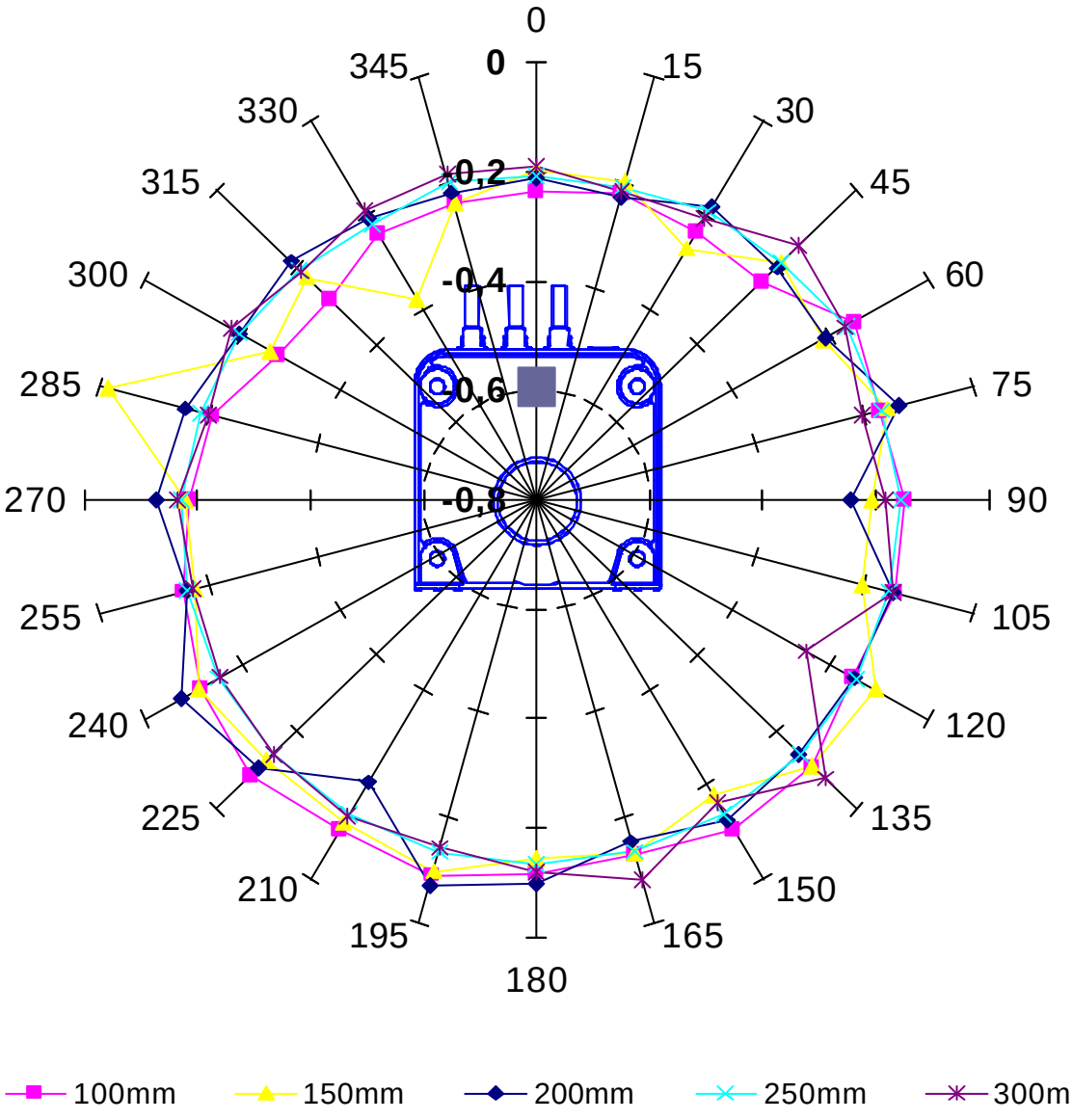
CS503: accuracy in parallel bar configuration

CS503: précision en configuration barre parallèle

General parameters: *Paramètres généraux:*

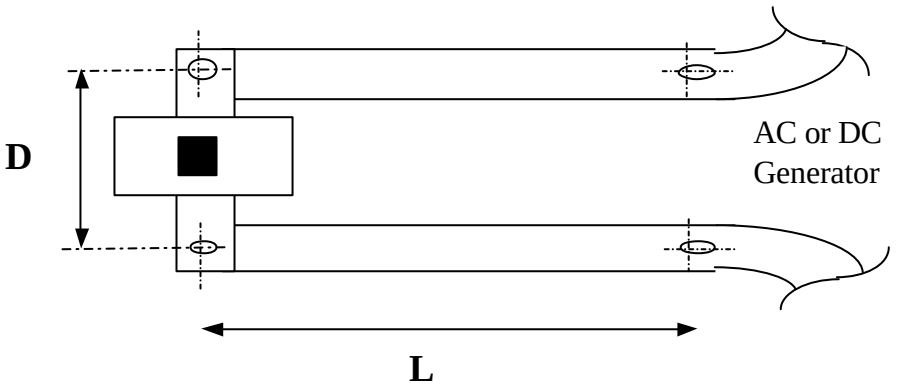
I_{PN} = 500A; DC *I_{PN} = 500A; DC*
R_M= 5 W *R_M= 5 W*
Supply Voltage: ±24 V *Alimentation: ±24 V*





2- Lateral bars configuration

2- Configuration barres latérales



Parameters / *Paramètres*

Sensor	E	L	Round Bar
CS300 and CS503	D1=110mm D2=150mm	400mm 400mm	Diameter=25mm Diameter=25mm

In such a configuration, for each 15° we measure the accuracy of the sensor. The result is given in the following pages.

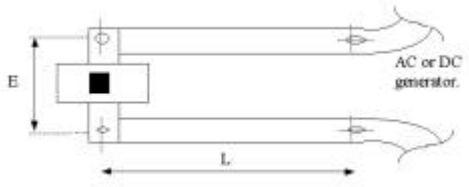
Dans une telle configuration, tous les 15° nous mesurons la précision du capteur. Les résultats sont donnés dans les pages suivantes.

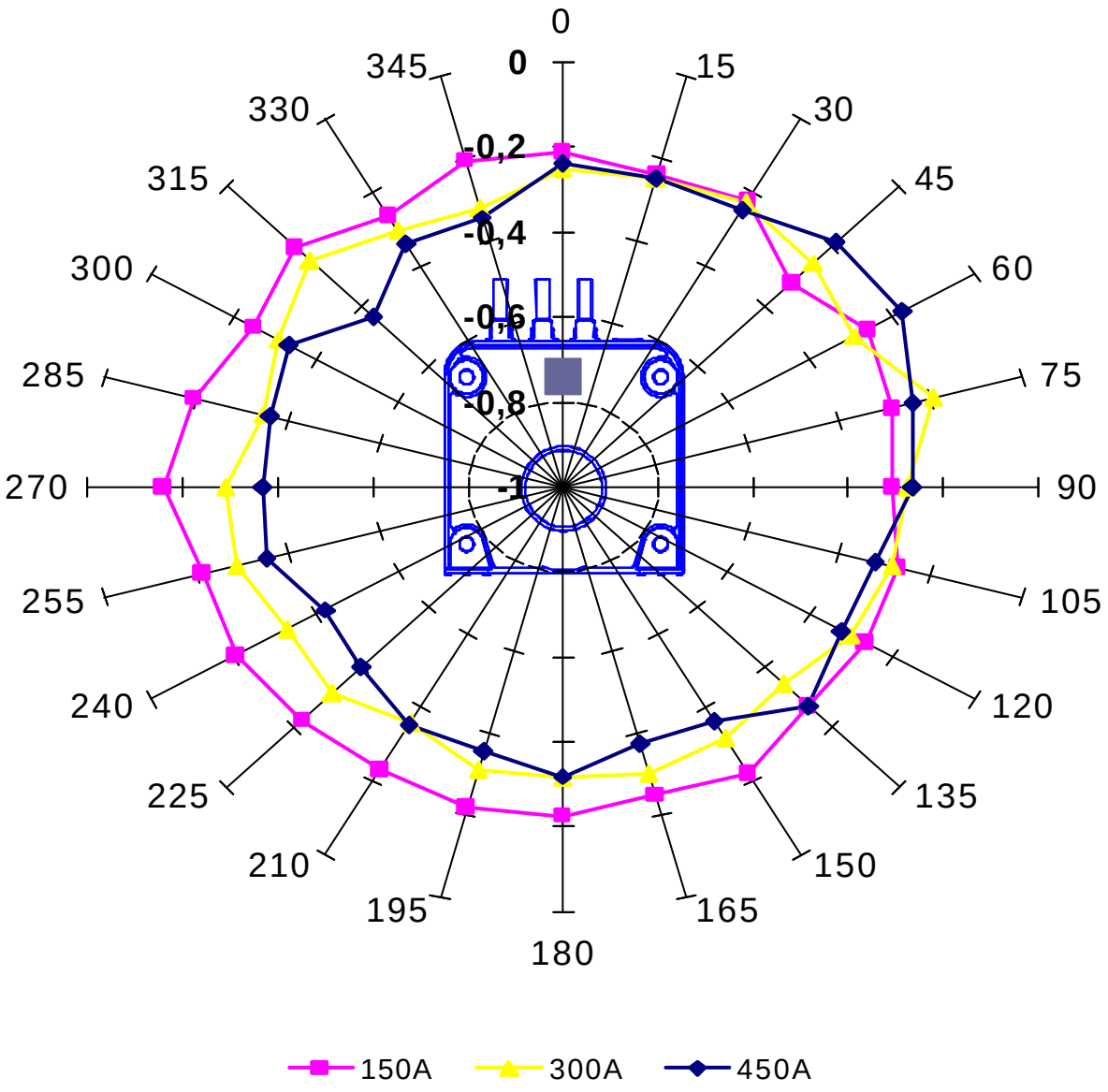
CS300: accuracy in laterals bars configuration

CS300: précision en configuration barres latérales

General parameters: *Paramètres généraux:*

I_{PN} = 300A; AC (50 Hz) *I_{PN} = 300A; AC (50 Hz)*
R_M= 5 W *R_M= 5 W*
Supply Voltage: ±15 V *Alimentation: ±15 V*





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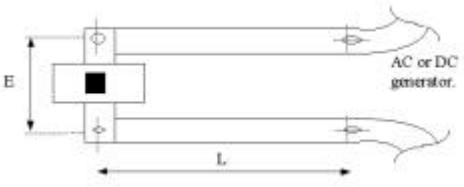
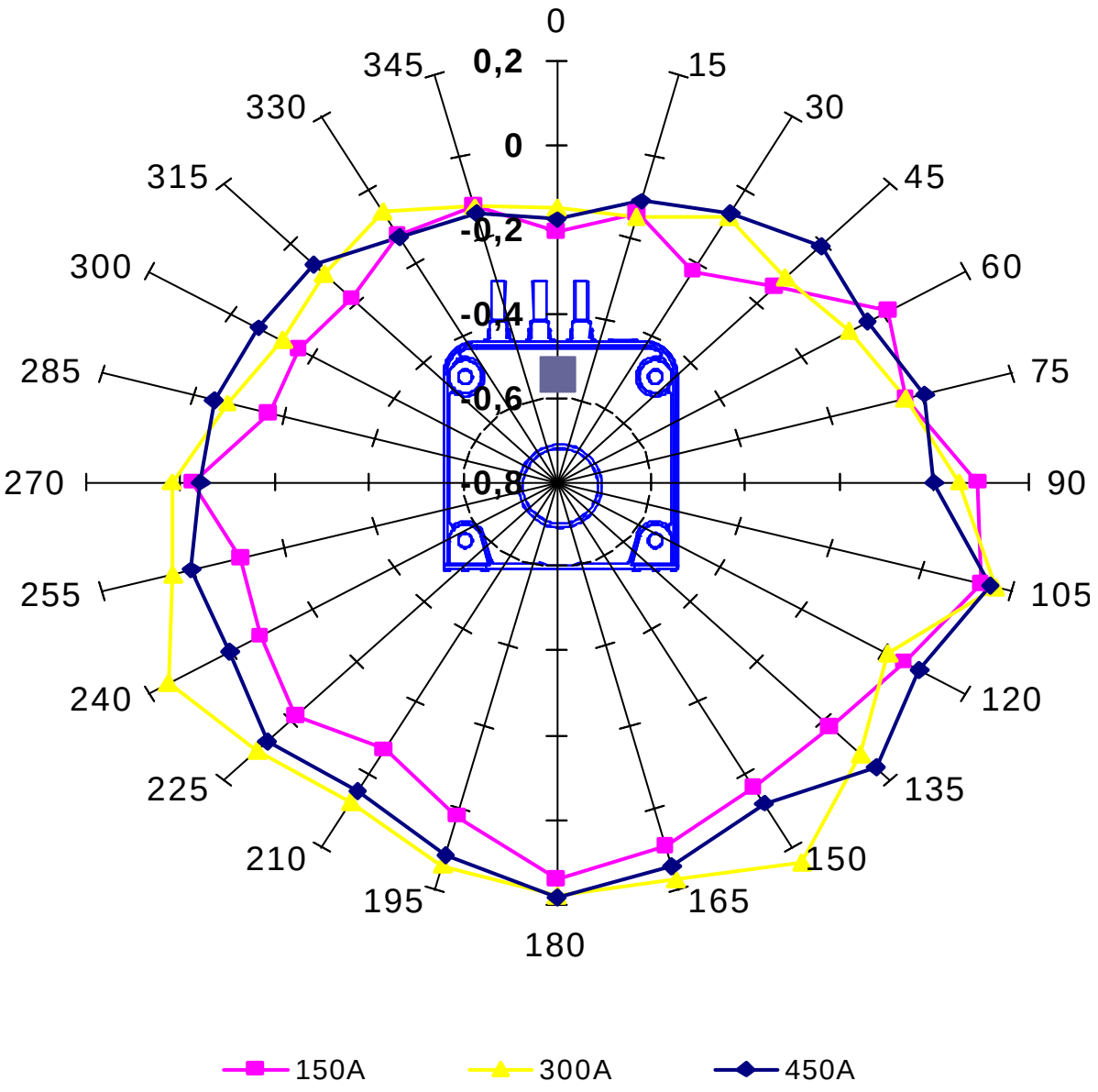
CS300: accuracy in laterals bars configuration

CS300: précision en configuration barres latérales

General parameters: *Paramètres généraux:*

I_{PN} = 300A; DC *I_{PN} = 300A; DC*
R_M= 5 W *R_M= 5 W*
Supply Voltage: ±15 V *Alimentation: ±15 V*





CS503: accuracy in laterals bars configuration

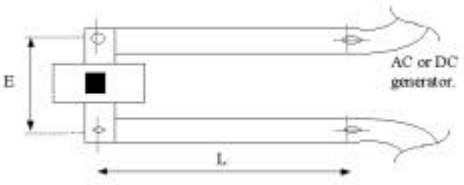
CS503: précision en configuration barres latérales

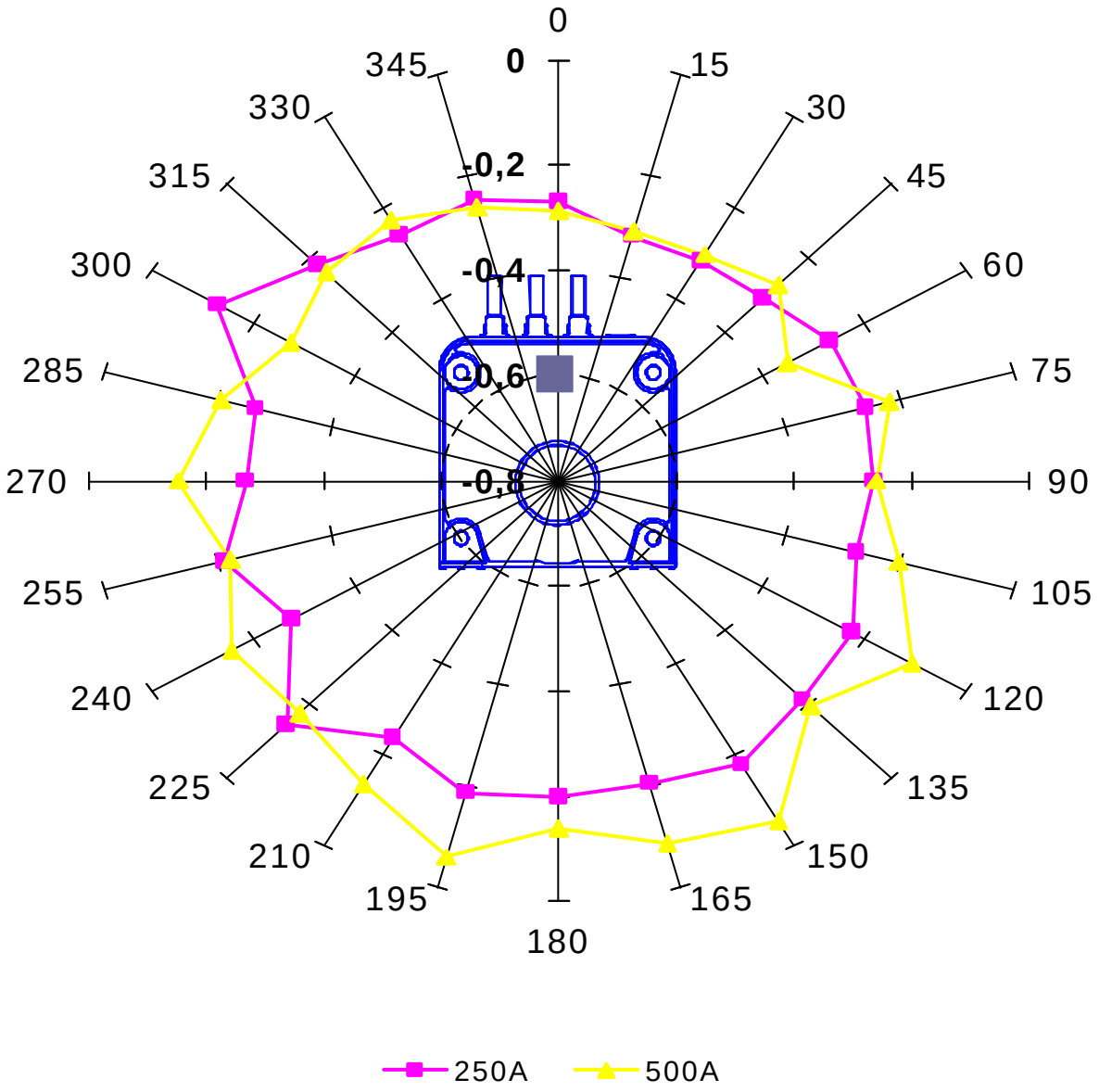
General parameters:

I_{PN} = 500A; AC (50 Hz)
R_M= 5 W
Supply Voltage: ±24 V

Paramètres généraux:

I_{PN} = 500A; AC (50 Hz)
R_M= 5 W
Alimentation: ±24 V



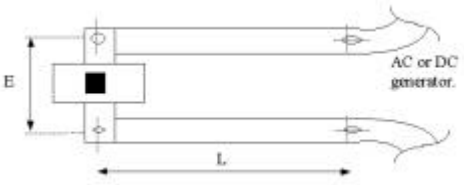


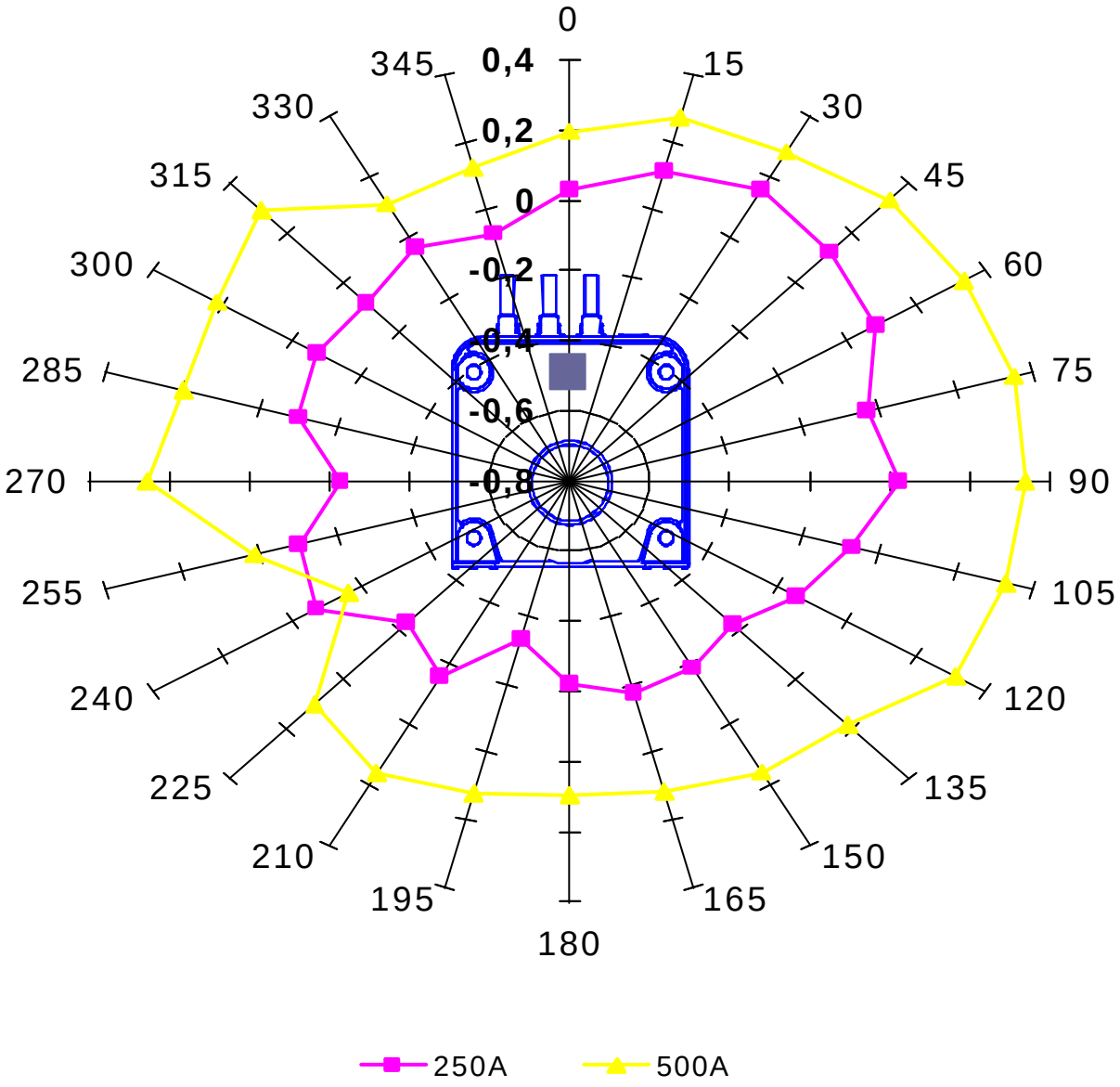
CS503: accuracy in laterals bars configuration

CS503: précision en configuration barres latérales

General parameters: *Paramètres généraux:*

I_{PN} = 500A; DC *I_{PN} = 500A; DC*
R_M= 5 W *R_M= 5 W*
Supply Voltage: ±24 V *Alimentation: ±24 V*





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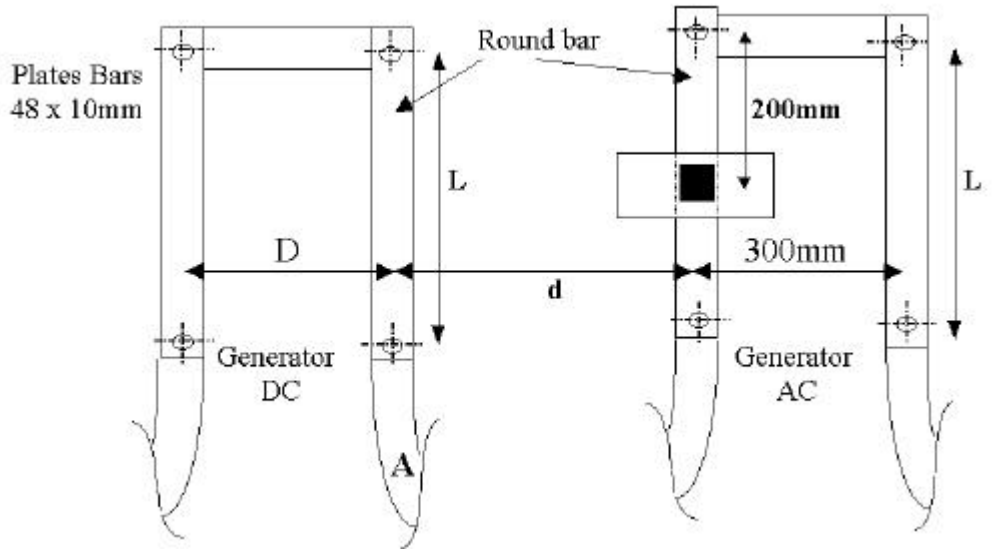
3 - External bars configuration

3 – Configuration barres externes



Parameters / *Paramètres*

Sensor	D	d	Rectangular Bar	Round Bar
CS300 and CS503	160mm 160mm	90mm 90mm	L=400mm 48 x 8mm	Diameter=25mm Diameter=25mm

In such a configuration, for each 15° we measure the accuracy of the sensor. The result is given in the following pages.

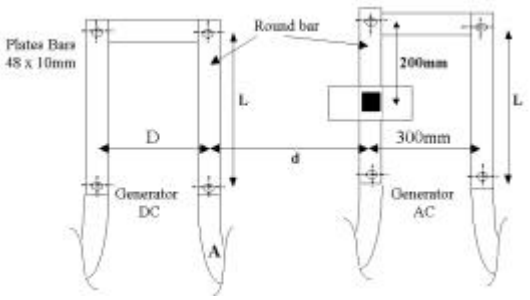
Dans une telle configuration, tous les 15° nous mesurons la précision du capteur. Les résultats sont donnés dans les pages suivantes.

CS300: accuracy in external bars configuration

CS300: précision en configuration barres extérieures

General parameters: *Paramètres généraux:*

I_{PN} = 300A; AC (50 Hz) *I_{PN} = 300A; AC (50 Hz)*
R_M= 5 W *R_M= 5 W*
Supply Voltage: ±15 V *Alimentation: ±15 V*



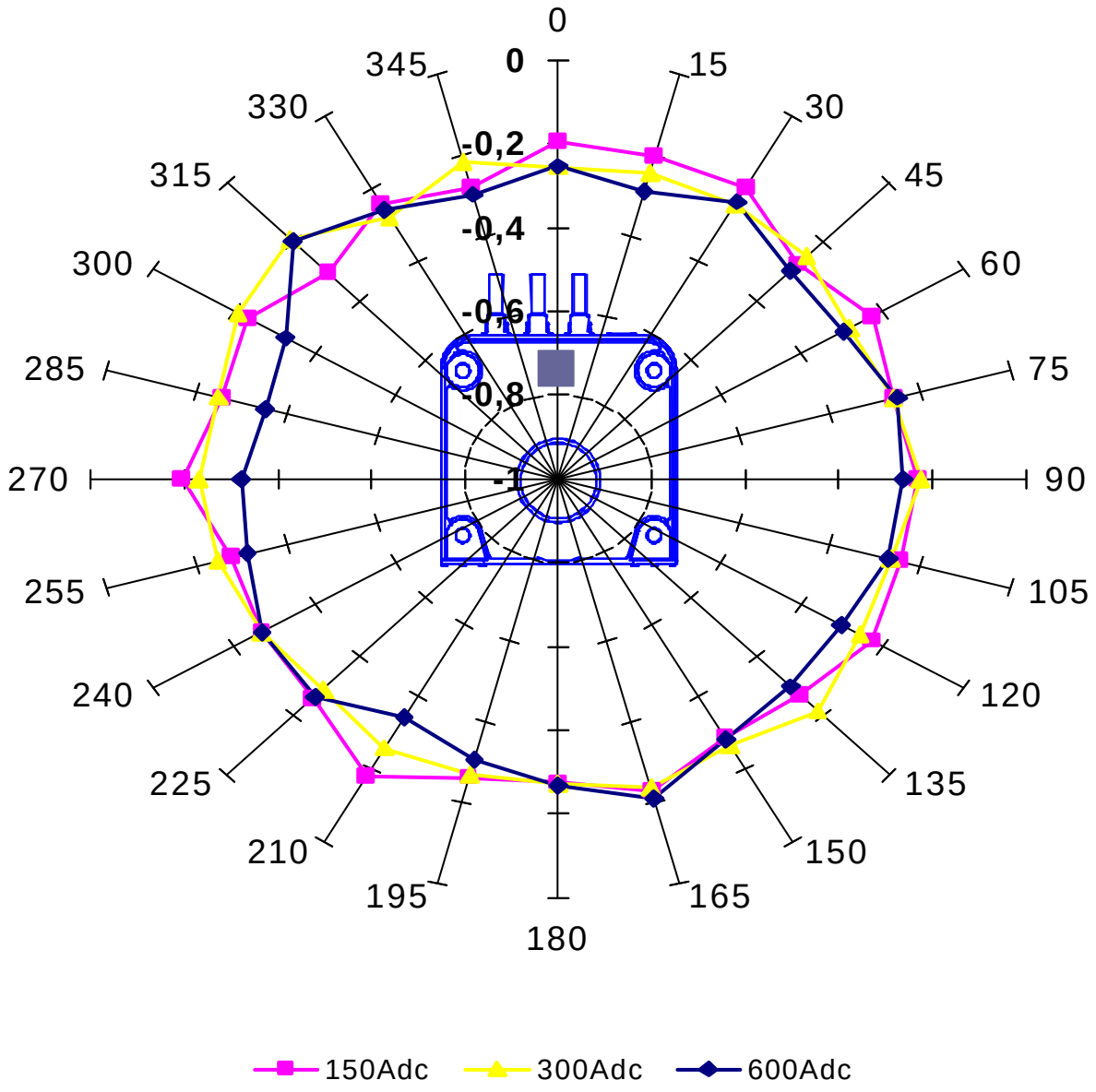


ABB Entrelec

CS503: accuracy in external bars configuration

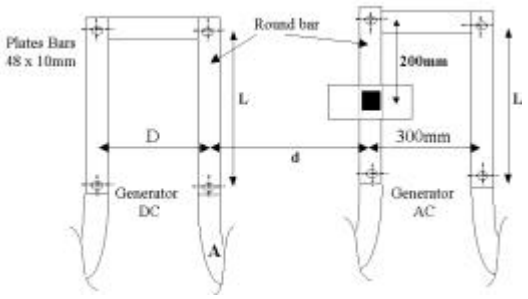
CS503: précision en configuration barres extérieures

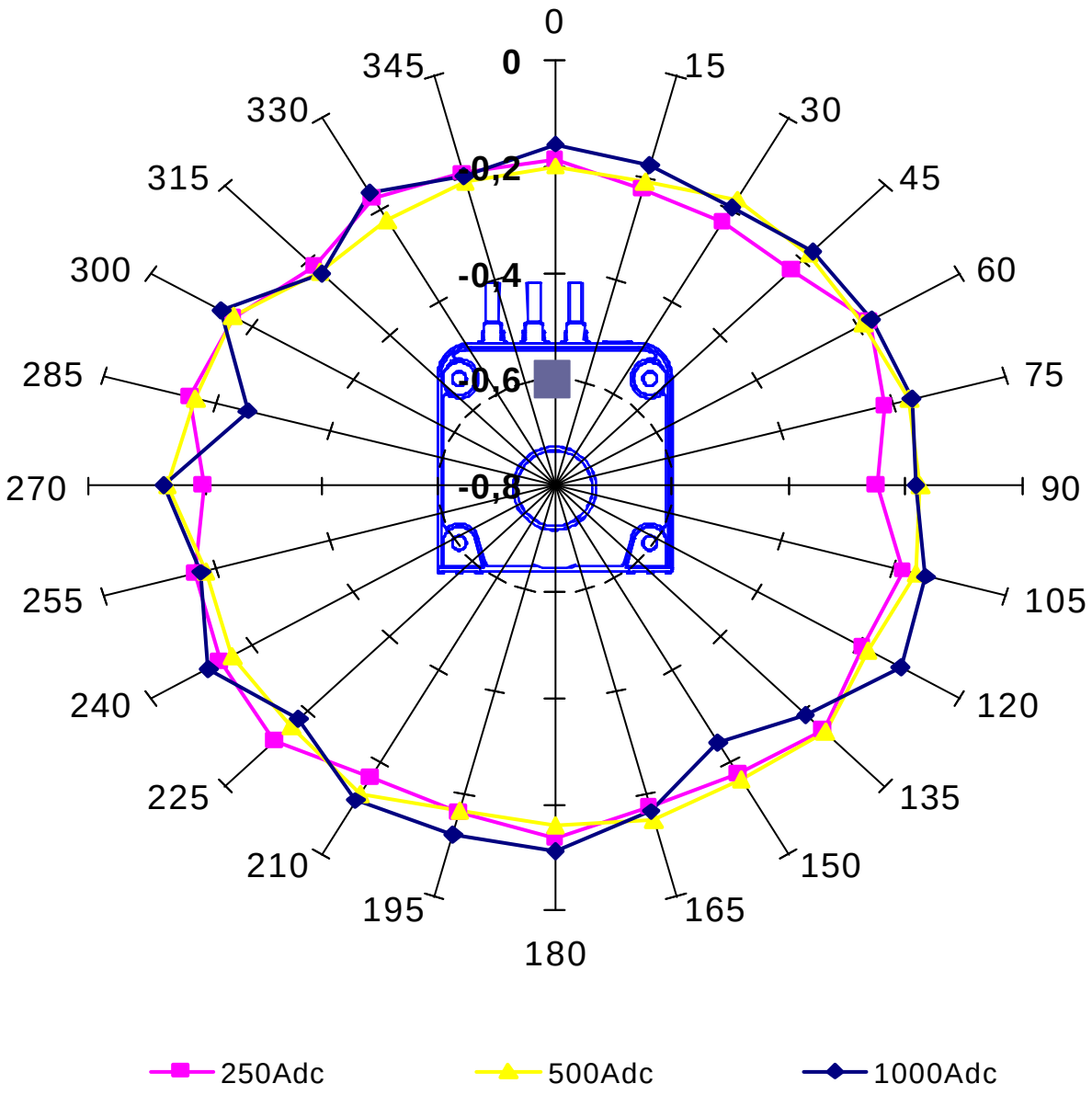
General parameters:

I_{PN} = 500A; AC (50 Hz)
R_M= 5 W
Supply Voltage: ±15 V

Paramètres généraux:

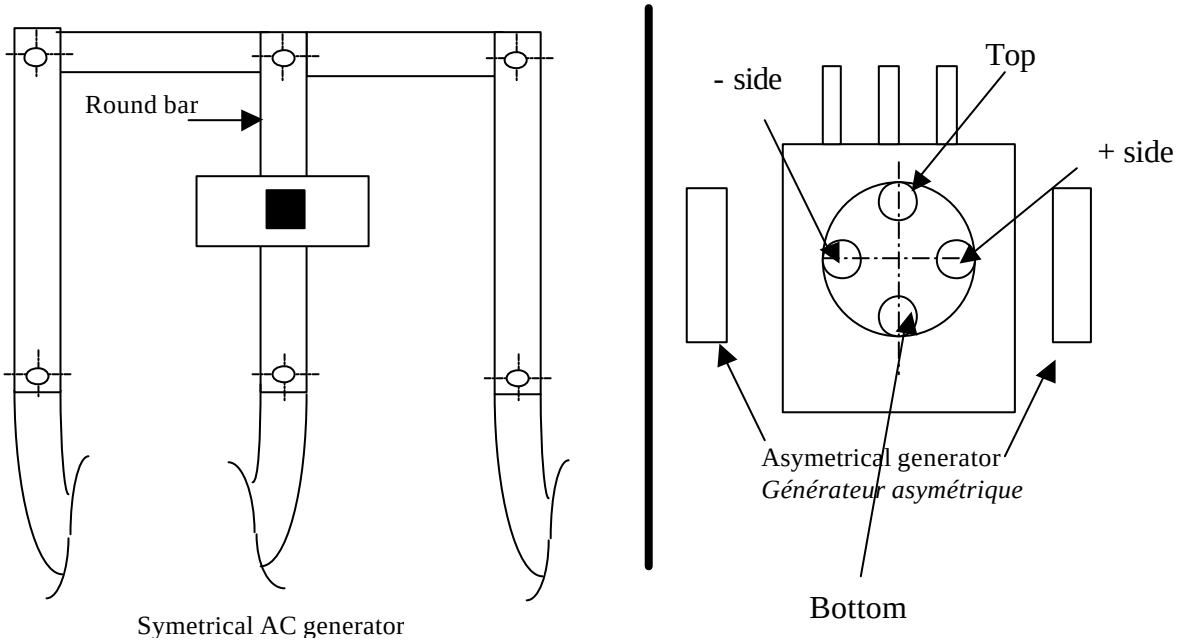
I_{PN} = 500A; AC (50 Hz)
R_M= 5 W
Alimentation: ±15 V





4 – Configuration round primary bar coupling:

4 – Configuration couplage barre primaire ronde :



Parameters / *Paramètres*

Sensor	Round bar
CS300 and CS503	Diameter = 10mm
CS500 and CS1000	Diameter = 25mm

In such a configuration, we determinate the influence of the position of the round bar inside the primary hole on the sensor accuracy.

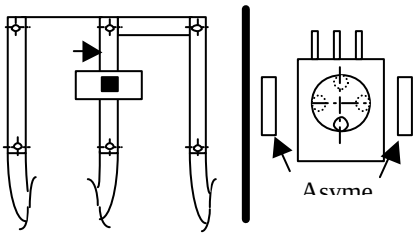
Dans cette configuration, on détermine l'influence de la position de la barre ronde dans le trou primaire sur la précision du capteur.

CS300: accuracy in round primary bar coupling configuration

CS300: précision en configuration couplage barre primaire ronde

General parameters: *Paramètres généraux:*

I_{PN} = 300A; AC (50 Hz) *I_{PN} = 300A; AC (50 Hz)*
R_M= 5 W *R_M= 5 W*
Supply Voltage: ±15 V *Alimentation: ±15 V*



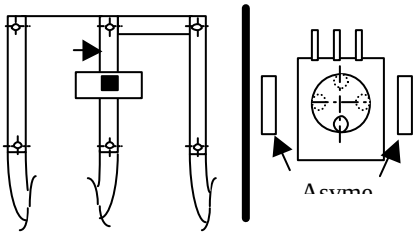
Position of the round bar inside the sensor hole	Ip moy A	Is moy A	Accuracy moy %
Top	315	0,16	**-0,23**
Bottom	305	0,15	**-0,29**
- Side	297	0,15	**-0,23**
+ Side	304	0,15	**-0,26**

CS503: accuracy in round primary bar coupling configuration

CS503: précision en configuration couplage barre primaire ronde

General parameters: *Paramètres généraux:*

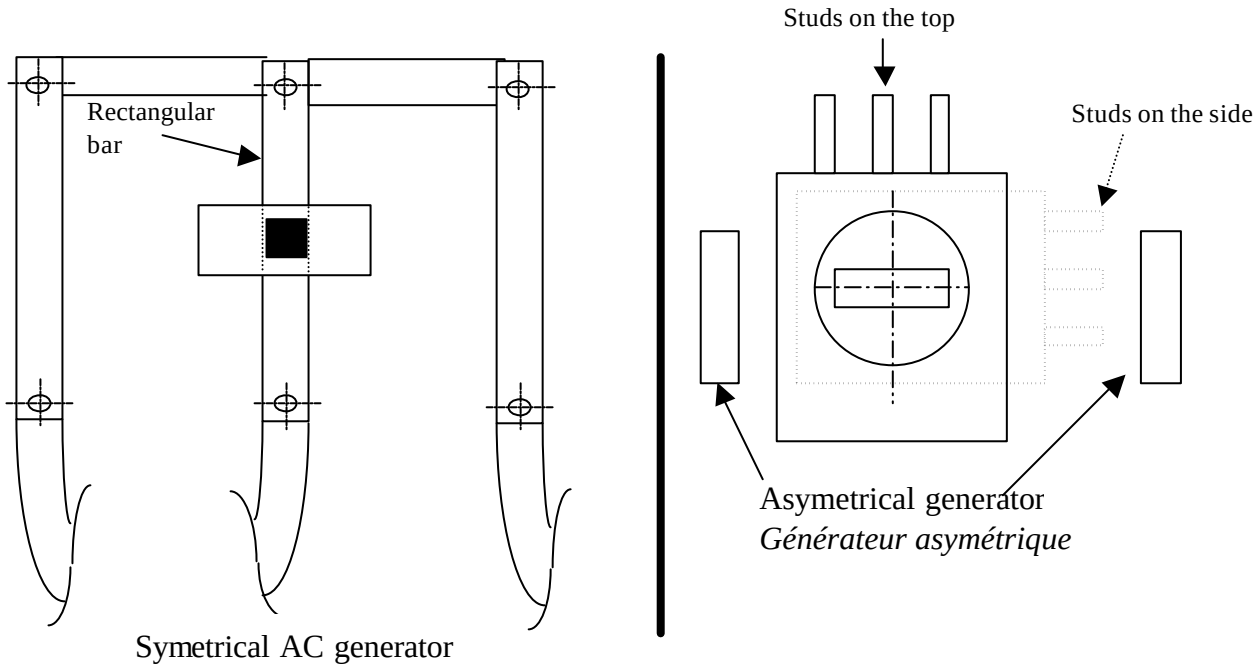
I_{PN} = 500A; AC (50 Hz) *I_{PN} = 500A; AC (50 Hz)*
R_M= 5 W *R_M= 5 W*
Supply Voltage: ±24 V *Alimentation: ±24 V*



Position of the round bar inside the sensor hole	Ip moy A	Is moy A	Accuracy moy %
Top	499	0,142	**-0,12**
Bottom	491	0,141	**-0,17**
- Side	519	0,148	**-0,24**
+ Side	507	0,145	**-0,11**

5 – Configuration rectangular primary bar coupling

5 – Configuration couplage barre primaire rectangulaire



Parameters / *Paramètres*

Sensor	Rectangular bar
CS300 and CS503	25 x 10mm

In such a configuration, we determinate the influence of the position of the round bar inside the primary hole on the sensor accuracy.

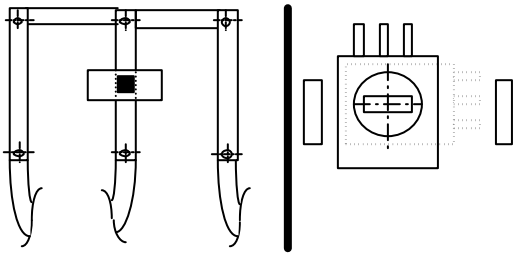
Dans cette configuration, on détermine l'influence de la position de la barre rectangulaire dans le trou primaire sur la précision du capteur.

CS300: accuracy in rectangular primary bar coupling configuration

CS300: précision en configuration couplage barre primaire rectangulaire

General parameters: *Paramètres généraux:*

I_{PN} = 300A; AC (50 Hz) *I_{PN} = 300A; AC (50 Hz)*
R_M= 5 W *R_M= 5 W*
Supply Voltage: ±15 V *Alimentation: ±15 V*



Position of the sensor	Ip moy A	Is moy mA	Accuracy moy %
studs on the top	305	152,1	**-0,21**
studs on the side	298	148,6	**-0,24**

CS503: accuracy in rectangular primary bar coupling configuration

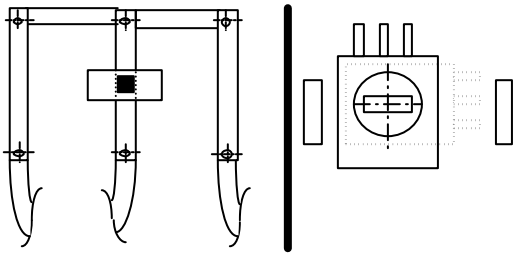
CS503: précision en configuration couplage barre primaire rectangulaire

General parameters:

I_{PN} = 500A; AC (50 Hz)
R_M= 5 W
Supply Voltage: ±24 V

Paramètres généraux:

I_{PN} = 500A; AC (50 Hz)
R_M= 5 W
Alimentation: ±24 V



Position of the sensor	Is moy mA	Ip moy A	Accuracy moy %
studs on the top	142	497	**-0,17**
studs on the side	144	505	**-0,14**