TP N 03 Mesure de résistances et lois d’association

1. **LOI D’HOM**

Description de la manipulation:

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Schémas de montage

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Matériel utilisé

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**Mesure de la résistance R1**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Tension | Courant | R( ) | Umesu( ) | Ulect( ) | Imes( ) | Ilect( ) | U/U( % ) | I/I(%) | R/R (%) | R ( ) |
| UR( ) | Cal. ( ) | IR( ) | Cal.( ) |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |

R= ;UR(lecture) = ; UR(mesure)= ;UR/UR=

IR(lecture)= ;IR(mesure) = ;IR/IR= ;R/R=

*Tracé de la courbe V(x)*

Commentaire:…………………………………………………………………………………………………………………………………………………………………………………………………………………………..……….………………………………………………………………………………………………………………………..

Déduction graphique de Rgr

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Autres méthodes de mesure de R (avec bref description de chaque méthode)

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2**- LOI D’ASSOCIATION DES RESISTANCES**

1. ***Association en série***

|  |  |  |
| --- | --- | --- |
| Tension U ( ) | Tension R2+ R2 | Courant |
| U2( ) | Cal. ( ) | I2( ) | Cal. ( ) | Req( ) |
|  |  |  |  |  |  |

Req=

**Calcul des incertitudes:**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| U2(Lecture)( ) | U2(Mesure)( ) | I2(Lecture)( ) | I2(Mesure)( ) | U2/U2(%) | I2/I2(%) | Req/Req(%) | Req( ) |
|  |  |  |  |  |  |  |  |

U2 (lecture)= ;U2 (mesure)= ;I2 (lecture) = ;I2 (mesure) =

UR/UR= ;I2/I2= ; Req/Req= ;Req=

Calcul théorique de la résistance équivalente:

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Loi d’association est-elle vérifier?

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1. ***Montage en parallèle***

|  |  |  |
| --- | --- | --- |
| Tension U ( ) | Tension (R1 et R2) | Courant  |
| U3() | Cal. ( ) | I3( ) | Cal. ( ) | Req( ) |
|  |  |  |  |  |  |

Req=

**Calcul des incertitudes:**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| U3(Lecture)( ) | U3(Mesure)( ) | I3(Lecture)( ) | I3(Mesure)( ) | UR/UR( %) | I3/I3( %) | Req/Req(%) | Req( ) |
|  |  |  |  |  |  |  |  |

U3 (lecture)= ; U3 (mesure)=; I3 (lecture)= ;I3 (Mesure)=

; U3/U3= ; I3/I3= ;Req/Req= ; Req

Calcul théorique de la résistance équivalente:

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Loi d’association est-elle vérifier?

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1. ***VERIFICATION DES LOIS DE KIRCHHOFF***

Schémas de montage

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1. *loi des mailles*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Branche | UAB | UBC | UCD | UDE | UEF | UBE |
| Cal. ( ) |  |  |  |  |  |  |
| U ( ) |  |  |  |  |  |  |
| U ( ) |  |  |  |  |  |  |

U =

Calcul théorique la différence de potentiel de chaque branche et les courants électriques

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Calcul de UAB+ UBE+ UEF, UAB+ UBC+ UCD+UDE+UEF et UBC+ UCD+ UDE

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Commentaire…………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

Compression des tensions calculées et les tensions mesurées, justification des éventuels écarts constatés

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1. *Loi des nœuds*

|  |  |  |  |
| --- | --- | --- | --- |
| Courant | Valeur | Cal. ( ) | I ( ) |
| I1 |  |  |  |
| I2 |  |  |  |
| I3 |  |  |  |

I =

Comparaison entre I2+ I3 et I1. Commentaire

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Compression des intensités des courants calculées et mesurées, justification des éventuels écarts constatés

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**CONCLUSION**

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………….

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