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**

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

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| --- | --- | --- | --- | --- |
| 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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