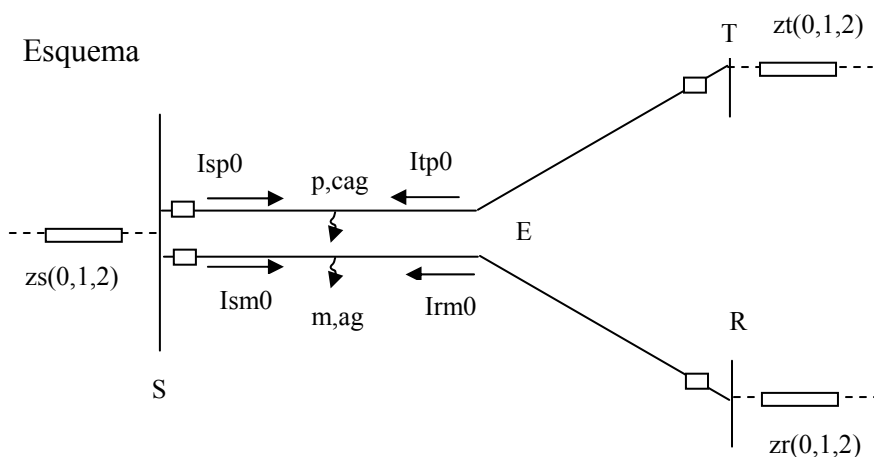


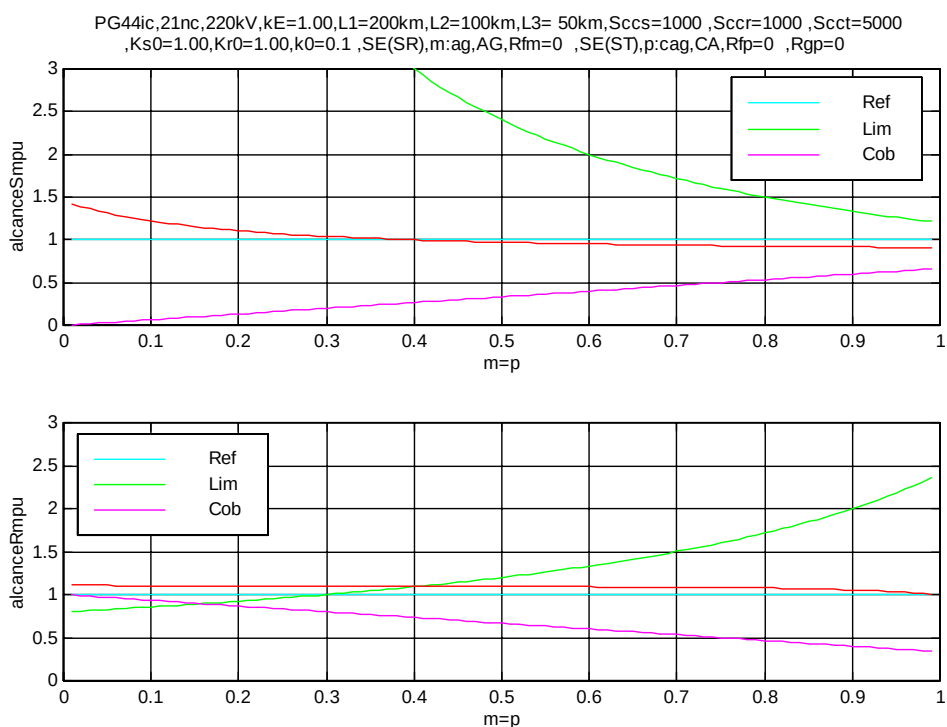
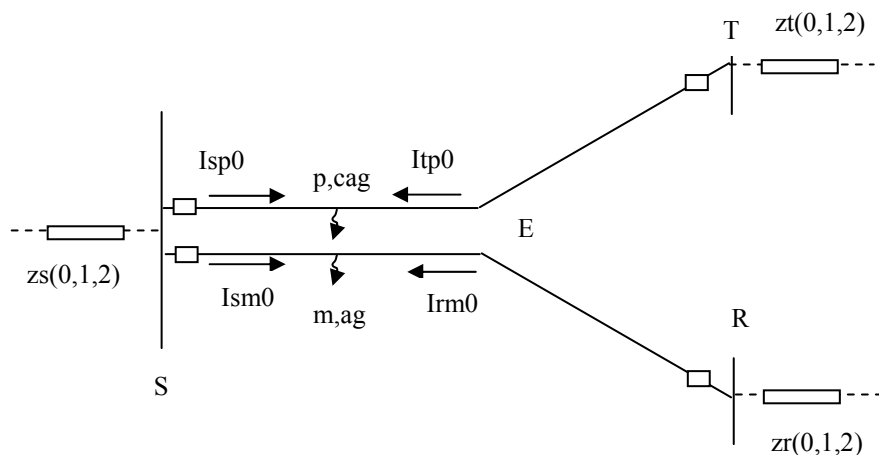


| PGc Casos Especiales 3: Faltas Diversas |                                                                                                            |              |           |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------|--------------|-----------|
| Programa                                | PG44ic                                                                                                     |              |           |
| Entrada Standard                        | Un=220 kV, kE=1, L1=200 km, L2=100 km, L3=50 km, Sccs=1000 MVA, Scrr=1000 MVA, Sctt=5000 MVA, Ks0=1, Kr0=1 |              |           |
|                                         | Compensación 21= No                                                                                        |              |           |
| Parámetro                               | $k0 = zt0/zs0 = 0.1$                                                                                       |              |           |
| Falta Doble<br>$m=p$                    | Falta m<br>Línea<br>SE( SR)                                                                                | m            | 0 . . . 1 |
|                                         |                                                                                                            | Tipo         | ag        |
|                                         |                                                                                                            | Elemento     | AG        |
|                                         |                                                                                                            | Rfm          | 0         |
|                                         |                                                                                                            | Rgm          | --        |
|                                         | Falta p<br>Línea<br>SE( ST)                                                                                | p            | 0 . . . 1 |
|                                         |                                                                                                            | Tipo         | cag       |
|                                         |                                                                                                            | Elemento     | CA        |
|                                         |                                                                                                            | Rfp          | 0         |
|                                         |                                                                                                            | Rgp          | 0         |
| Salida 1                                | 21 Salida pu<br>Unidad Preferente AG                                                                       | alcanceSmpu  | a01       |
|                                         |                                                                                                            | alcanceRmpu  |           |
|                                         | 21 Salida pu<br>Unidad Preferente AG                                                                       | alcanceSppu  | a02       |
|                                         |                                                                                                            | alcanceTppu  |           |
| Salida 2                                | 21 Salida pua<br>Unidad Preferente AG                                                                      | alcanceSmpua | b01       |
|                                         |                                                                                                            | alcanceRmpua |           |
|                                         | 21 Salida pua<br>Unidad Preferente AG                                                                      | alcanceSppua | b02       |
|                                         |                                                                                                            | alcanceTppua |           |
| Salida 3                                | 21 Salida pua<br>Todas las Unidades<br>AB,BC,CA,AG,BG,CG                                                   | alcanceSmpua | f01       |
|                                         |                                                                                                            | alcanceRmpua | f02       |
|                                         |                                                                                                            | alcanceSppua | f03       |
|                                         |                                                                                                            | alcanceTppua | f04       |
| Salida 4                                | 67N                                                                                                        | Sm           | n01       |
|                                         |                                                                                                            | Rm           | n02       |
|                                         |                                                                                                            | Sp           | n03       |
|                                         |                                                                                                            | Tp           | n04       |
| Salida 5                                | 21 R-X                                                                                                     | Sm           | z01       |
|                                         |                                                                                                            | Rm           | z02       |
|                                         |                                                                                                            | Sp           | z03       |
|                                         |                                                                                                            | Tp           | z04       |

Programa PG44ic

Salida Especial Faltas Diversas,Falta ag-cag: a01

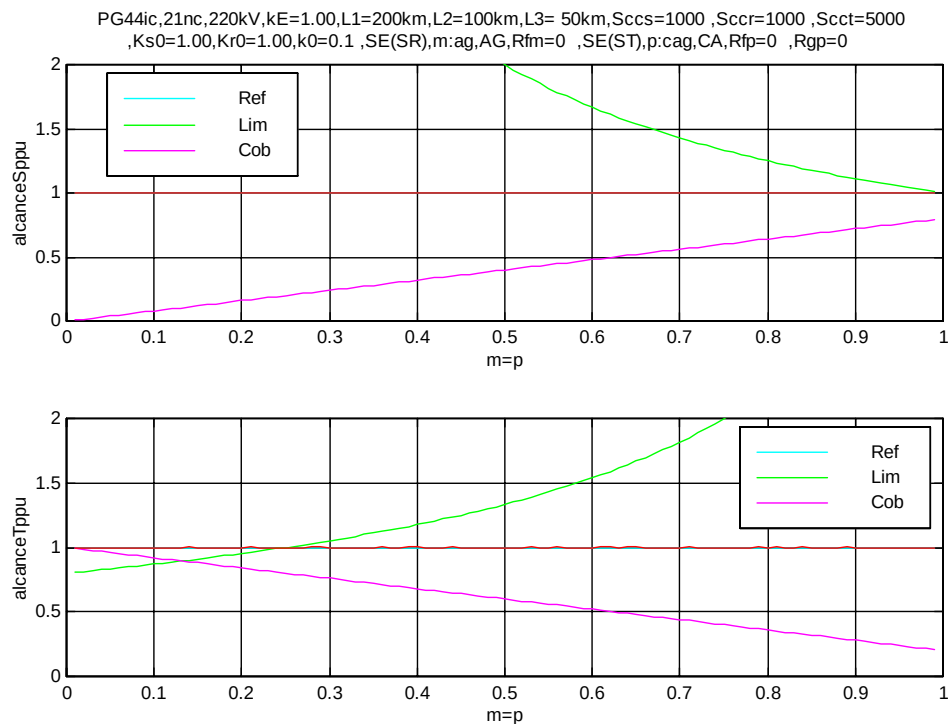
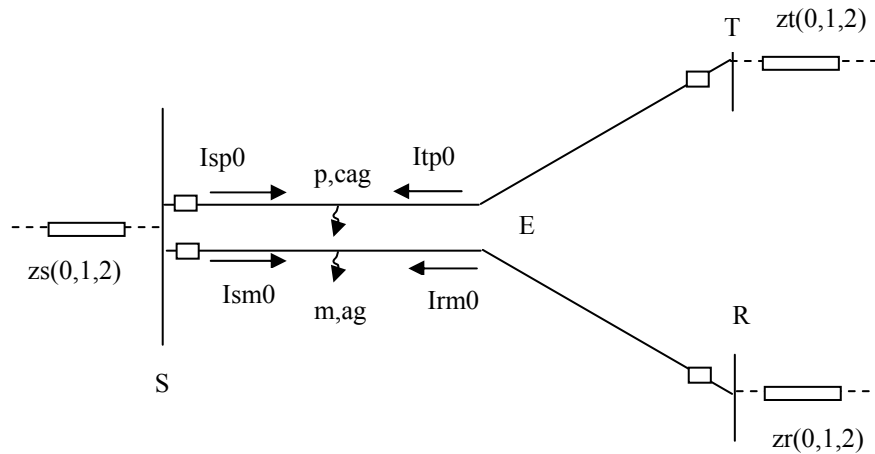
Esquema:


 $m(\text{Tramo SE}(\text{SR}))$  ;  $p(\text{Tramo SE}(\text{ST}))$ 
Sm(AG): Falseamiento dependiendo de  $I_{sp0}(k_0,m)$  y de  $m=p$  $m = 0, \dots, 0.32$ , (tramo SE)  $\rightarrow$  aleja, error decreciente (efecto de  $I_{sp0}$  relativo a  $I_{sm0}$ ) $m = 0.32, \dots, 0.40$ , (tramo SE)  $\rightarrow$  medidas exactas (efecto de  $I_{sp0}$  relativo a  $I_{sm0}$ ) $m = 0.40, \dots, 1$ , (tramo SE)  $\rightarrow$  acerca, error creciente (efecto de  $I_{sp0}$  relativo a  $I_{sm0}$ )Paso a Zona 2:  $m > \text{tramo}(\text{SE}(\text{SR}))$ Rm(AG): Falseamiento dependiendo de  $I_{tp0}(k_0,m)$  y de  $m$  $1-m = 0, \dots, 1$ , (tramo ES)  $\rightarrow$  aleja, error creciente (efecto de  $I_{tp0}$  relativo a  $I_{rm0}$ )Paso a Zona 2:  $1-m=0.60$  tramo ES, equivalente a 0.73 de la línea RS

Programa PG44ic

Salida Especial Faltas Diversas,Falta ag-cag: a02

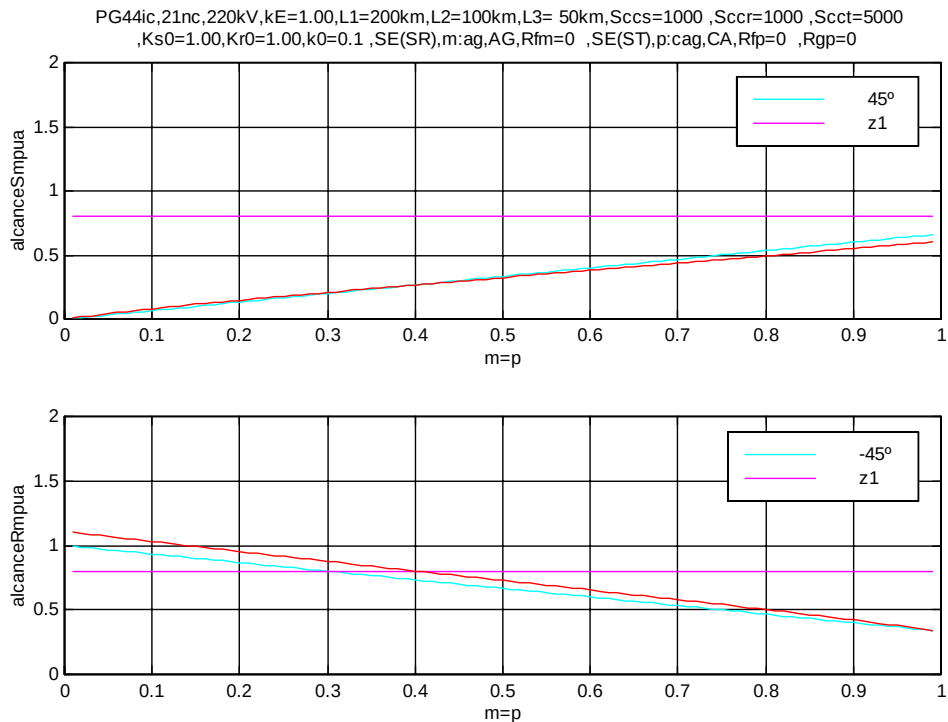
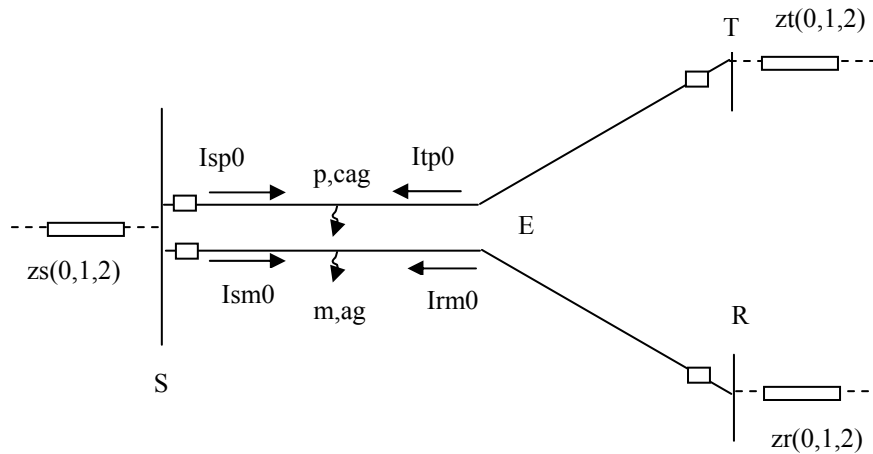
Esquema:


 $m(\text{Tramo SE}(\text{SR})) ; p(\text{Tramo SE}(\text{ST}))$ 
 $Sp(CA)$ : Falseamiento dependiendo de  $I_{sm0}(k0, m)$  y de  $m=p$ 
 $m = 0, \dots, 1.0$ , (tramo SE)  $\rightarrow$  medición correcta
Paso a Zona 2:  $m > \text{tramo SE}$ 
 $Tp(CA)$ : Falseamiento dependiendo de  $I_{rm0}(k0, m)$  y de  $1-m=1-p$ 
 $1-m = 0.00, \dots, 1.00$ , (tramo ES)  $\rightarrow$  medición correcta
Paso a Zona 2:  $1-m=0.75$  tramo ES, equivalente a 0.80 de la línea TS

Programa PG44ic

Salida Especial Faltas Diversas,Falta ag-cag: b01

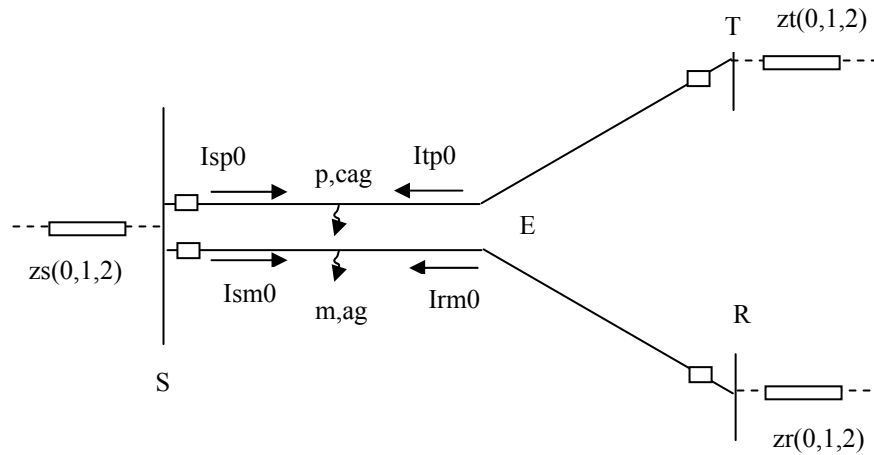
Esquema:


 $m(\text{Tramo SE}(\text{SR})) ; p(\text{Tramo SE}(\text{ST}))$ 
Sm(AG): Falseamiento dependiendo de  $I_{sp0}(k_0, m)$  y de  $m=p$  $m = 0, \dots, 0.32$ , (tramo SE)  $\rightarrow$  aleja, error decreciente (efecto de  $I_{sp0}$  relativo a  $I_{sm0}$ ) $m = 0.32, \dots, 0.40$ , (tramo SE)  $\rightarrow$  medidas exactas (efecto de  $I_{sp0}$  relativo a  $I_{sm0}$ ) $m = 0.40, \dots, 1$ , (tramo SE)  $\rightarrow$  acerca, error creciente (efecto de  $I_{sp0}$  relativo a  $I_{sm0}$ )Paso a Zona 2:  $m > \text{tramo}(\text{SE}(\text{SR}))$ Rm(AG): Falseamiento dependiendo de  $I_{tp0}(k_0, m)$  y de  $1-m=1-p$  $1-m = 0, \dots, 1$ , (tramo ES)  $\rightarrow$  aleja, error creciente (efecto de  $I_{tp0}$  relativo a  $I_{rm0}$ )Paso a Zona 2:  $1-m=0.60$  tramo ES, equivalente a 0.73 de la línea RS

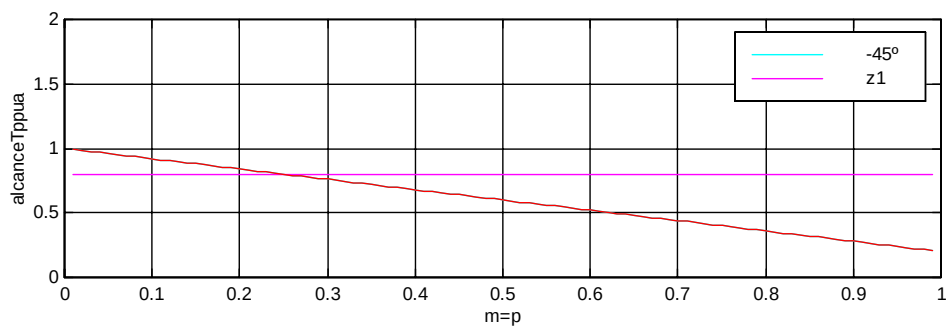
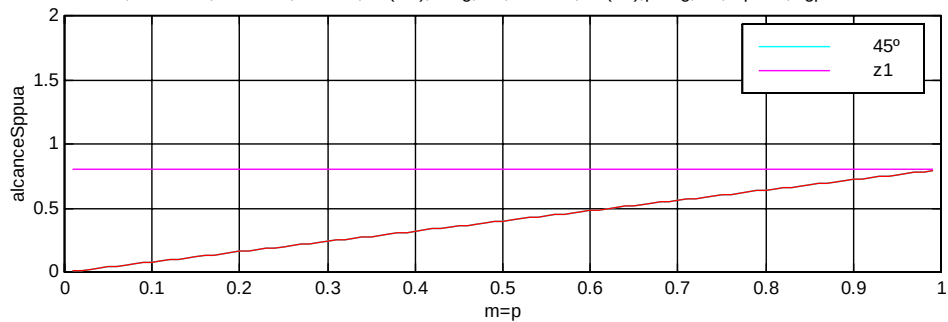
Programa PG44ic

Salida Especial Faltas Diversas,Falta ag-cag: b02

Esquema:



PG44ic,21nc,220kV,kE=1.00,L1=200km,L2=100km,L3= 50km,Scs=1000 ,Scsr=1000 ,Scct=5000  
 ,Ks0=1.00,Kr0=1.00,k0=0.1 ,SE(SR),m:ag,AG,Rfm=0 ,SE(ST),p:cag,CA,Rfp=0 ,Rgp=0



$m(\text{Tramo SE}(\text{SR}))$  ;  $p(\text{Tramo SE}(\text{ST}))$

$Sp(\text{CA})$ : Falseamiento dependiendo de  $Ism0(k0,m)$  y de  $m=p$

$m = 0, \dots, 1$ , (tramo SE) → medición correcta

Paso a Zona 2:  $m=1$

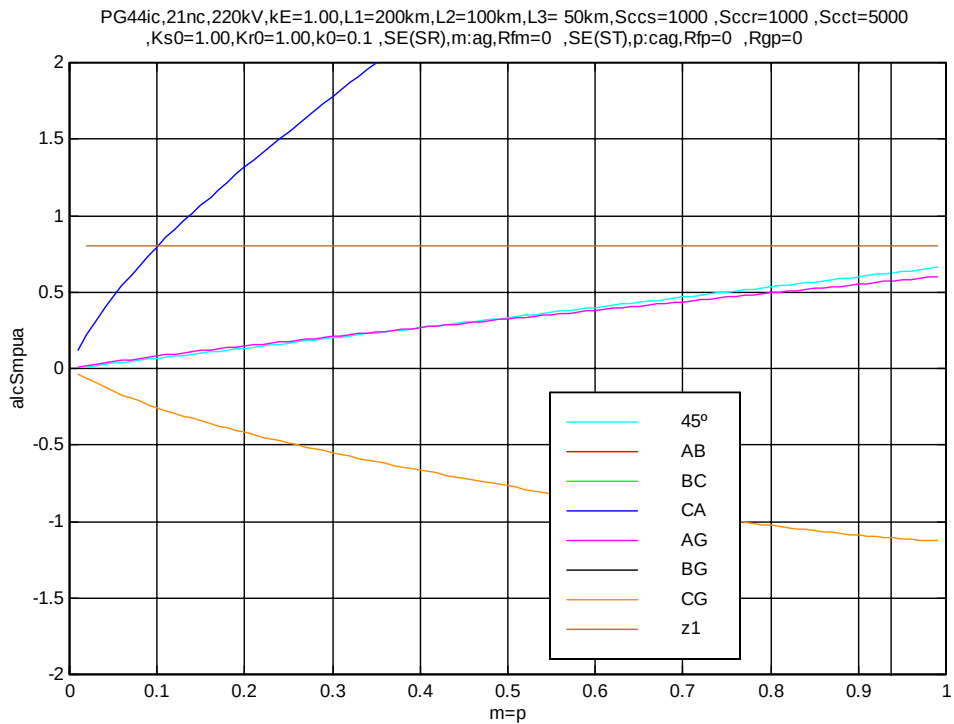
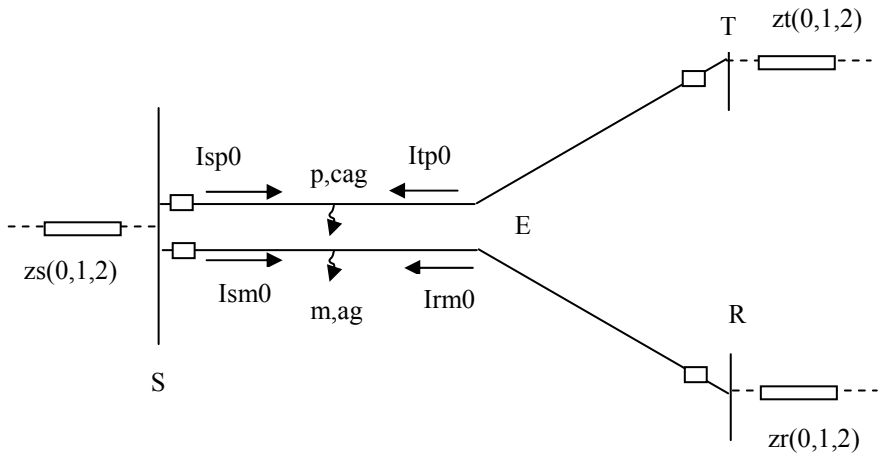
$Tp(\text{CA})$ : Falseamiento dependiendo de  $Irm0(k0,m)$  y de  $1-m=1-p$

$1-m = 0, \dots, 1$ , (tramo ES) → medición correcta

Paso a Zona 2:  $1-m=0.75$  tramo ES, equivalente a 0.80 de la línea TS

Programa PG44ic  
Salida Especial Faltas Diversas,Falta ag-cag: f01

Esquema:

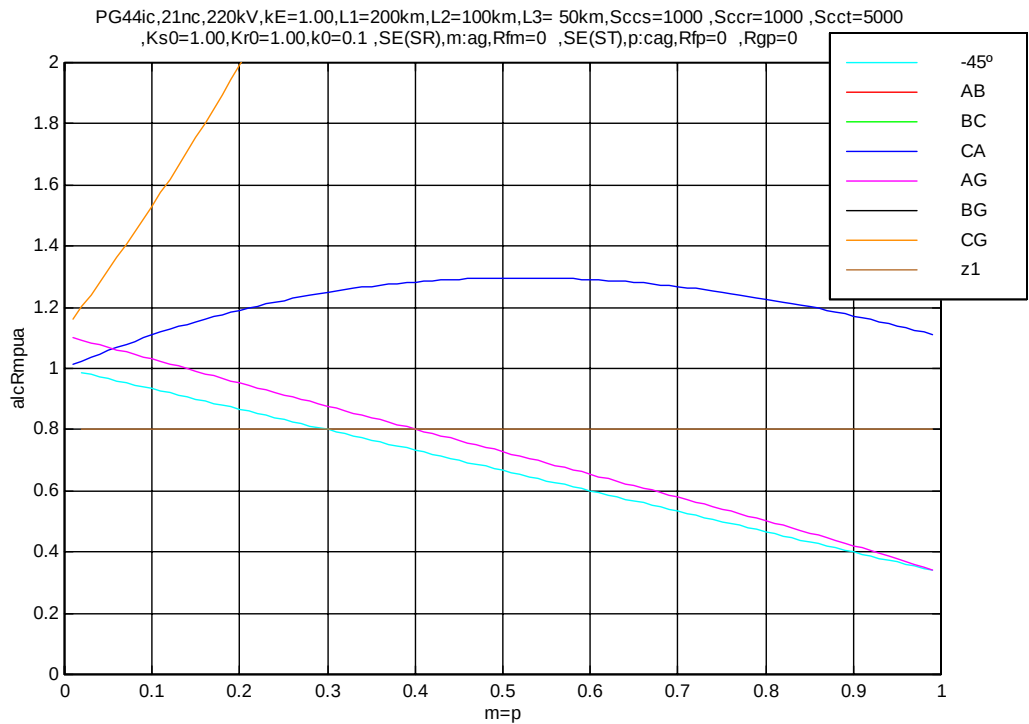
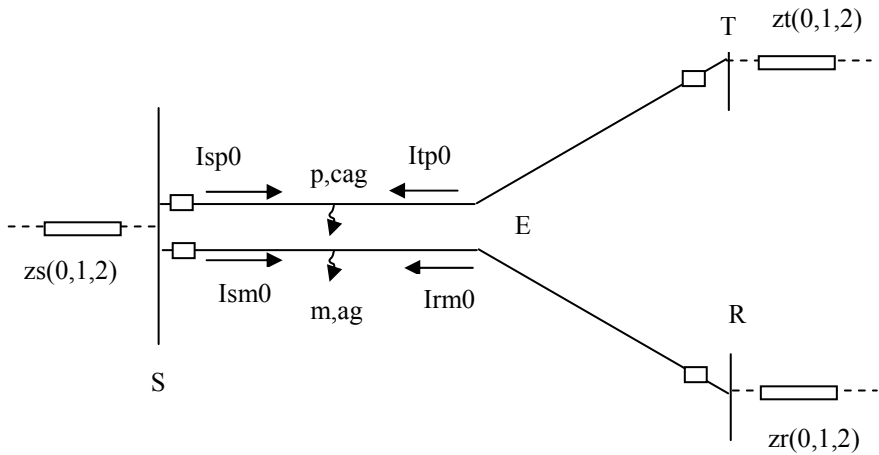


m(Tramo SE(SR)) ; p(Tramo SE(ST))

| Unidad    | AB | BC | CA   | AG           | BG | CG |
|-----------|----|----|------|--------------|----|----|
| Cobertura | -- | -- | 0.07 | >tramo<br>SE | -- | -- |

Programa PG44ic  
Salida Especial Faltas Diversas,Falta ag-cag: f02

Esquema:

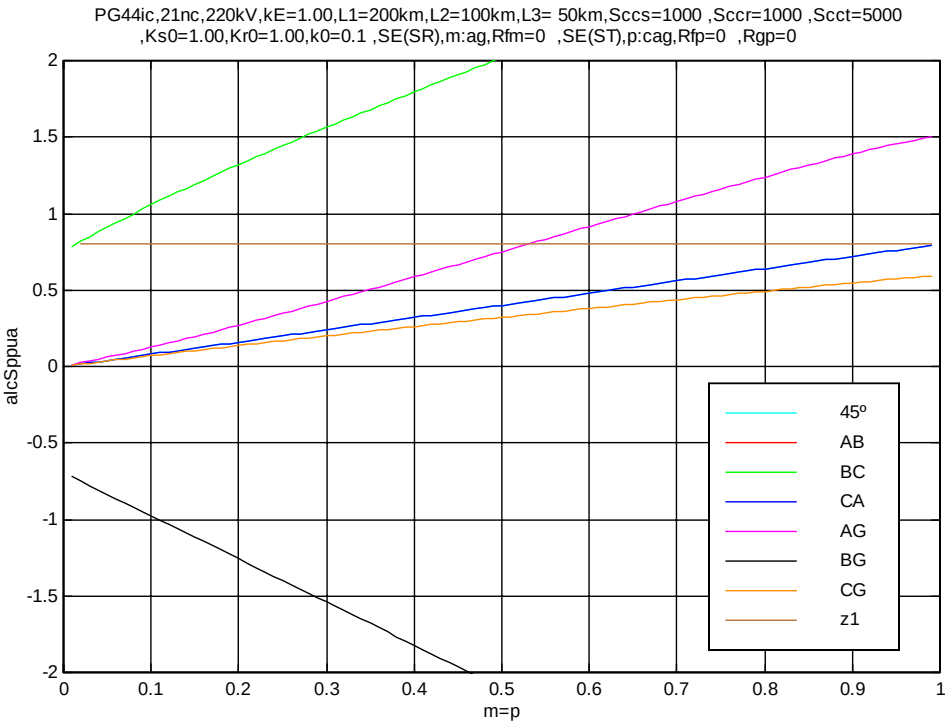
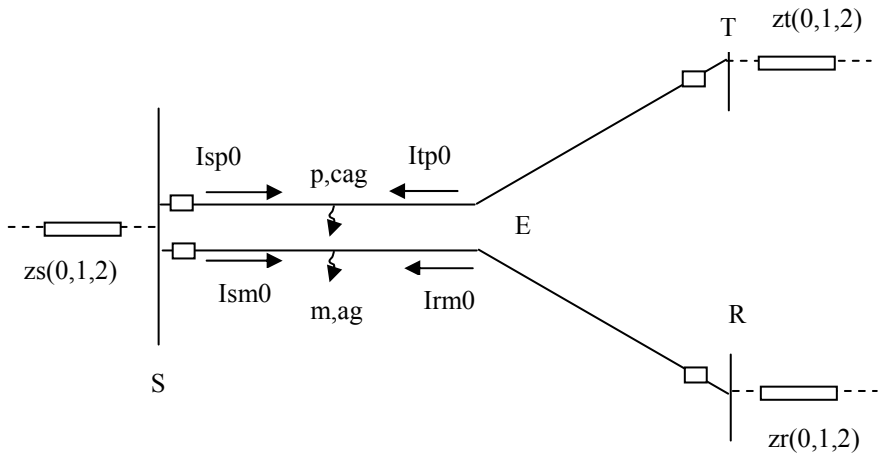


m(Tramo SE(SR)) ; p(Tramo SE(ST))

|           |    |    |    |      |    |    |
|-----------|----|----|----|------|----|----|
| Unidad    | AB | BC | CA | AG   | BG | CG |
| Cobertura | -- | -- | -- | 0.73 | -- | -- |

Programa PG44ic  
Salida Especial Faltas Diversas,Falta ag-cag: f03

Esquema:



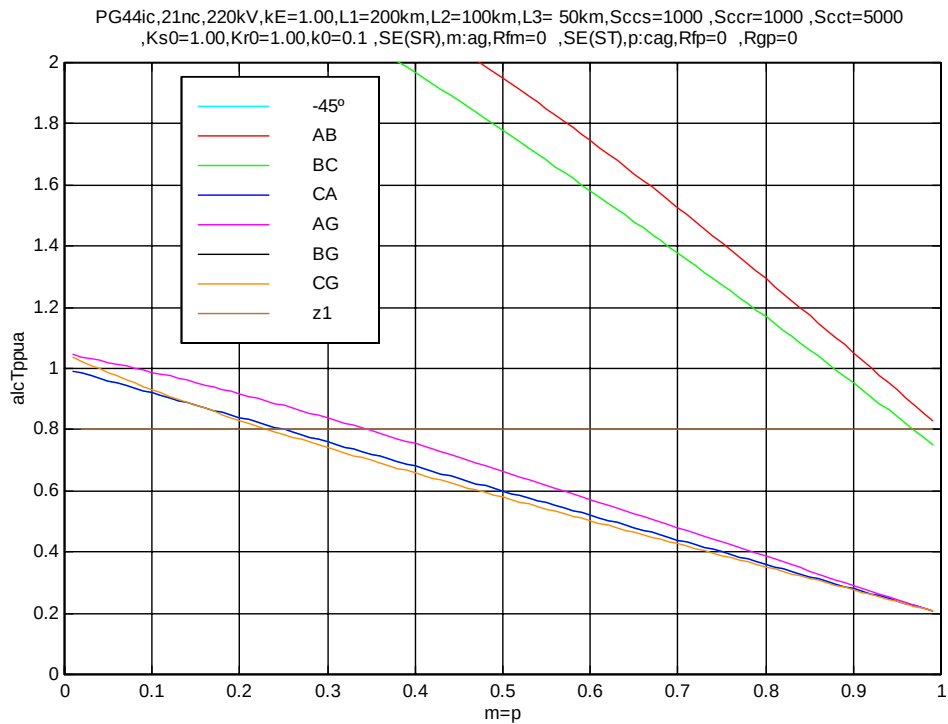
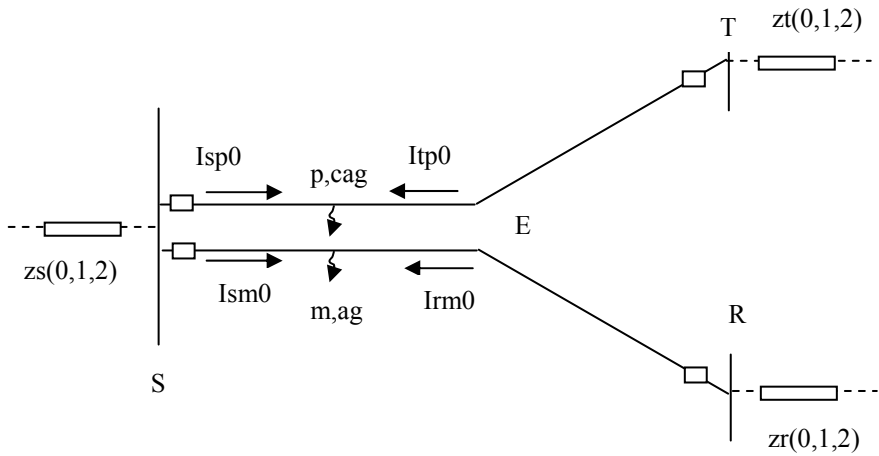
m(Tramo SE(SR)) ; p(Tramo SE(ST))

| Unidad    | AB | BC   | CA   | AG   | BG | CG        |
|-----------|----|------|------|------|----|-----------|
| Cobertura | -- | 0.01 | 0.80 | 0.42 | -- | >tramo SE |



Programa PG44ic  
Salida Especial Faltas Diversas,Falta ag-cag: f04

Esquema:



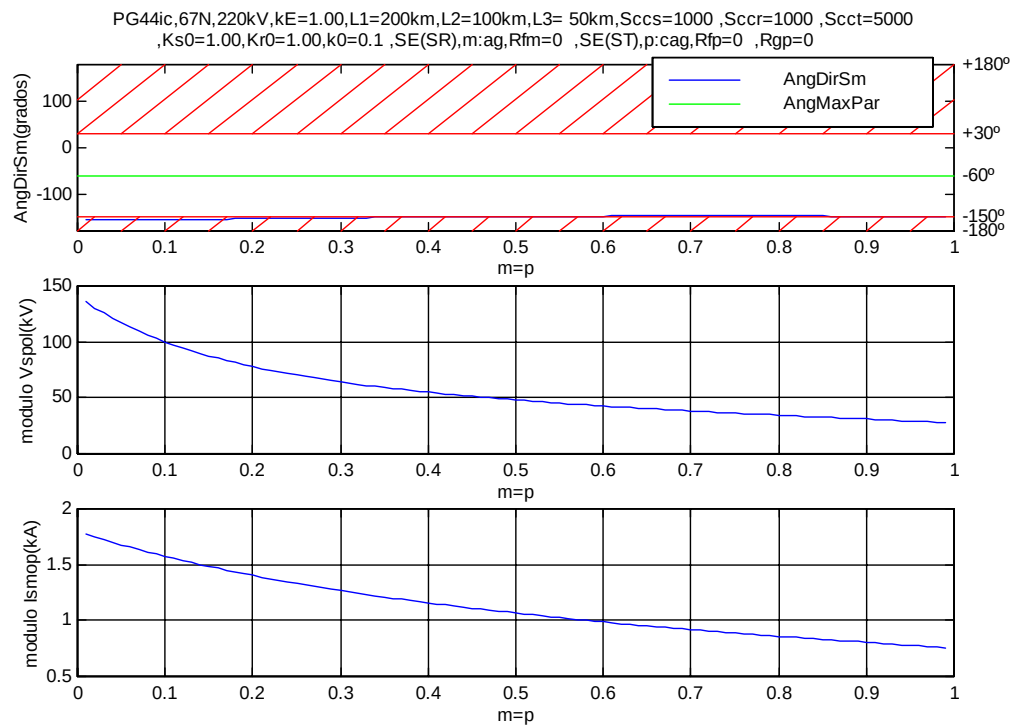
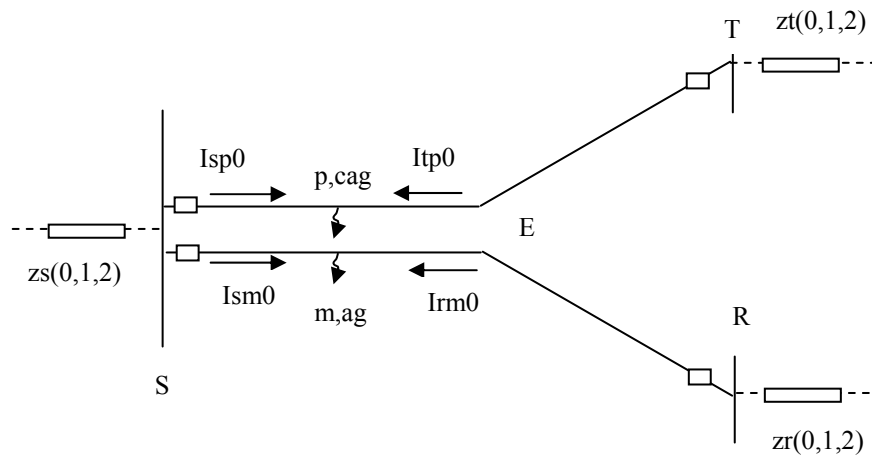
m(Tramo SE(SR)) ; p(Tramo SE(ST))

|           |    |      |      |      |    |      |
|-----------|----|------|------|------|----|------|
| Unidad    | AB | BC   | CA   | AG   | BG | CG   |
| Cobertura | -- | 0.23 | 0.80 | 0.73 | -- | 0.82 |

Programa PG44ic

Salida Especial Faltas Diversas,Falta ag-cag: n01

Esquema:



m(Tramo SE(SR)) ; p(Tramo SE(ST))

Direccionalidad: No (crítica)

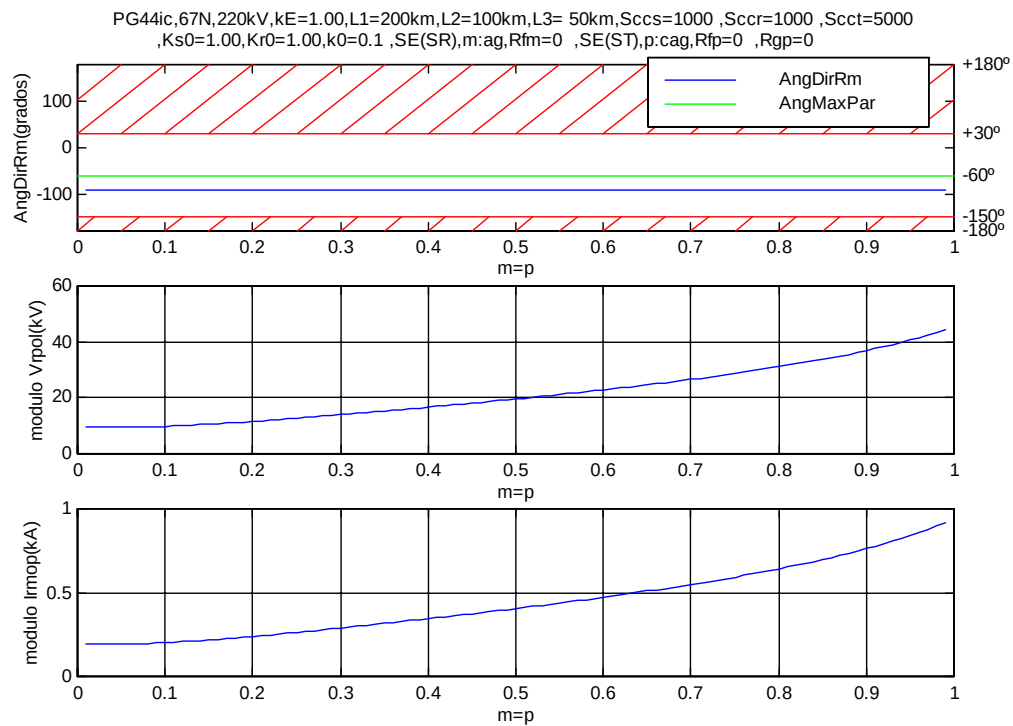
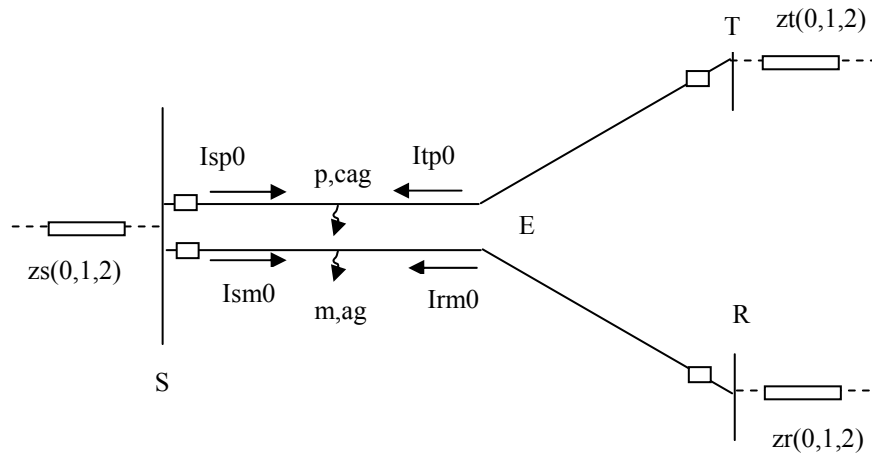
Sensibilidad de Tensión : decreciente (con m)

Sensibilidad de Corriente: decreciente (con m)

Programa PG44ic

Salida Especial Faltas Diversas,Falta ag-cag: n02

Esquema:



m(Tramo SE(SR)) ; p(Tramo SE(ST))

Direccionalidad: 1-m=0...1

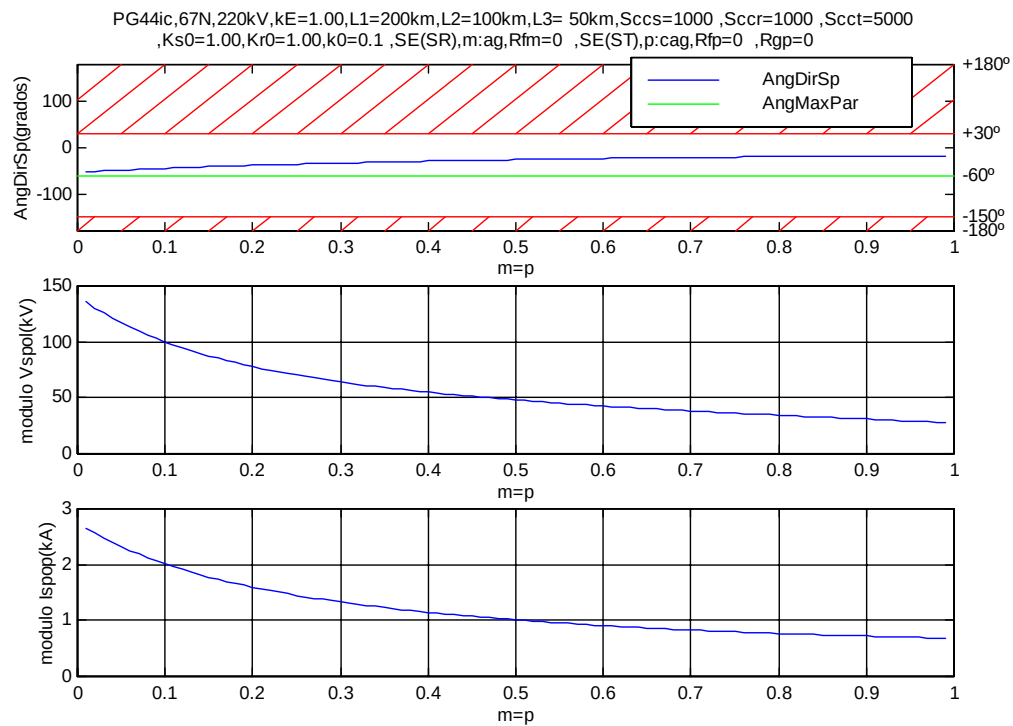
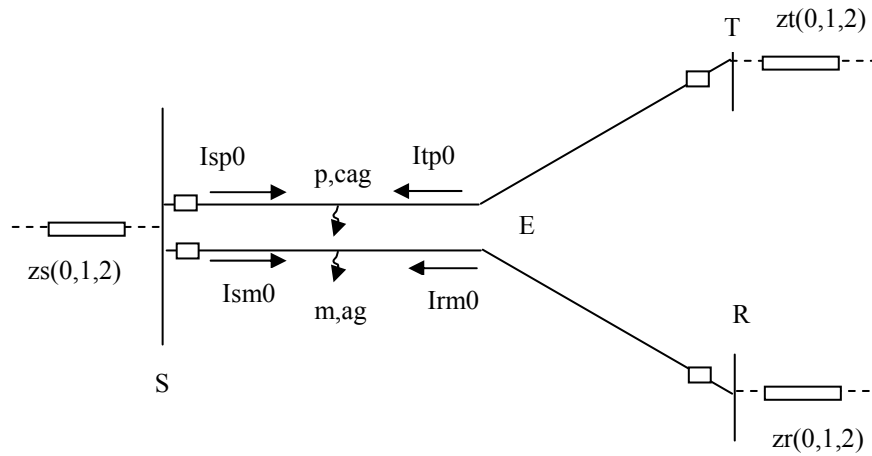
Sensibilidad de Tensión : decreciente (con 1-m)

Sensibilidad de Corriente: decreciente (con 1-m)

Programa PG44ic

Salida Especial Faltas Diversas,Falta ag-cag: n03

Esquema:



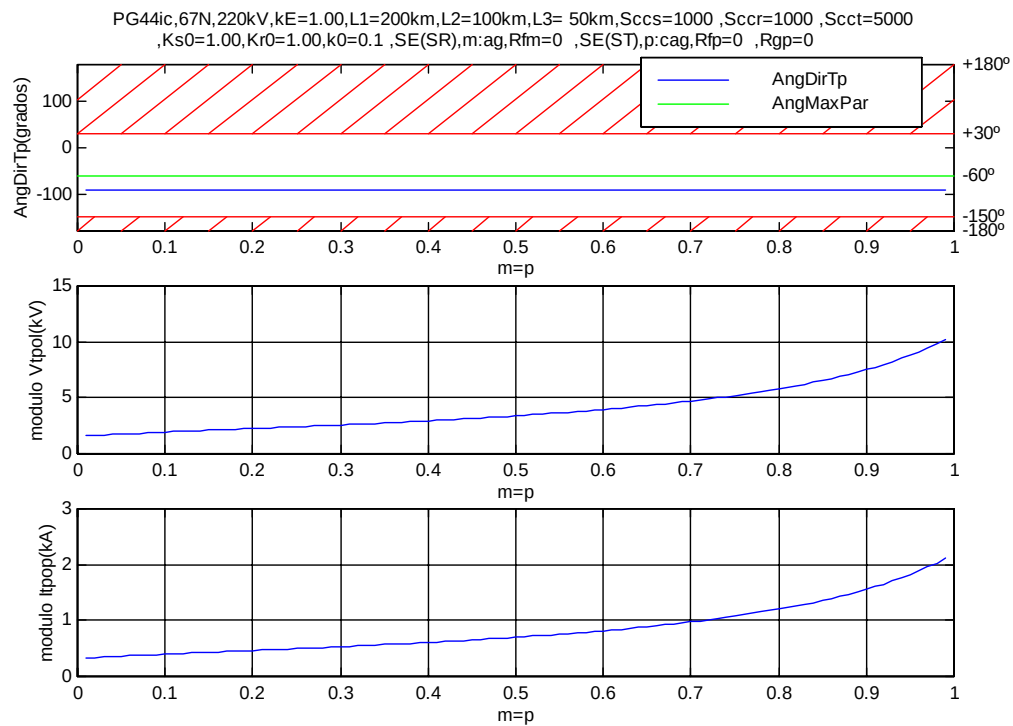
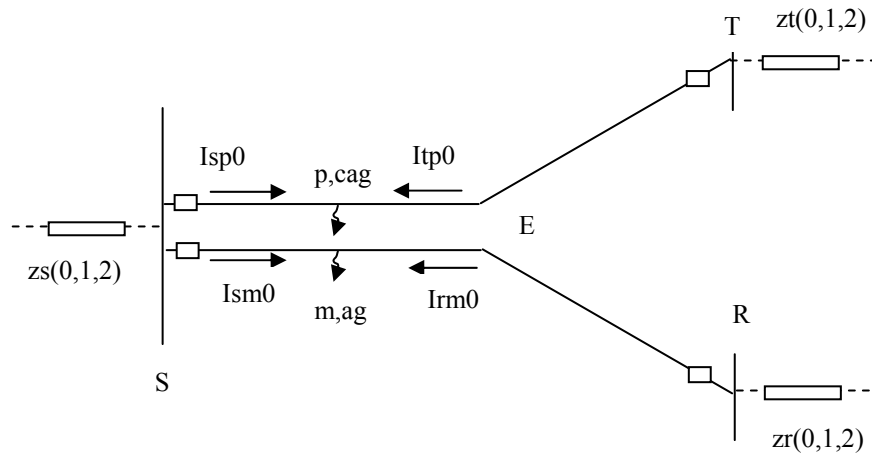
m(Tramo SE(SR)) ; p(Tramo SE(ST))

Direccionalidad:  $p=m=0...1$ Sensibilidad de Tensión : decreciente (con  $p=m$ )Sensibilidad de Corriente: decreciente (con  $p=m$ )

Programa PG44ic

Salida Especial Faltas Diversas,Falta ag-cag: n04

Esquema:

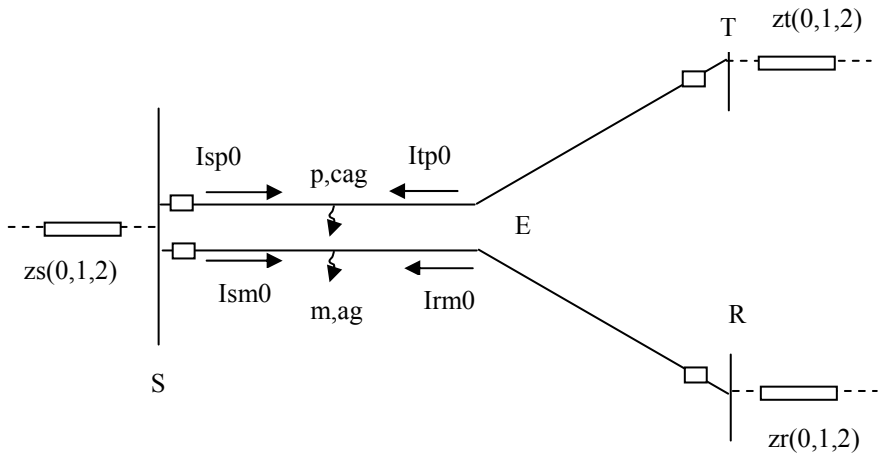


m(Tramo SE(SR)) ; p(Tramo SE(ST))

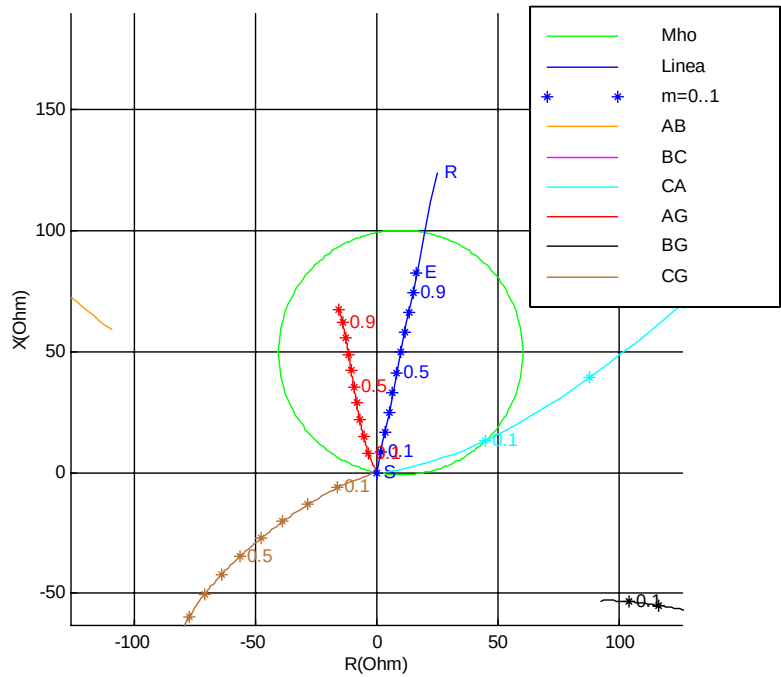
Direccionalidad:  $1-p=1-m=0\dots 1$ Sensibilidad de Tensión : decreciente (con  $1-p=1-m$ )Sensibilidad de Corriente: decreciente (con  $1-p=1-m$ )

Programa PG44ic  
Salida Especial Faltas Diversas,Falta ag-cag: z01

Esquema:



PG44ic,21nc,220kV,kE=1.00,L1=200km,L2=100km,L3= 50km,Sccs=1000 ,Sccr=1000 ,Sctt=5000  
,Ks0=1.00,Kr0=1.00,k0=0.1 ,SE(SR),m:ag,Rfm=0 ,SE(ST),p:cag,Rfp=0 ,Rgp=0 ,Proteccion: Sm

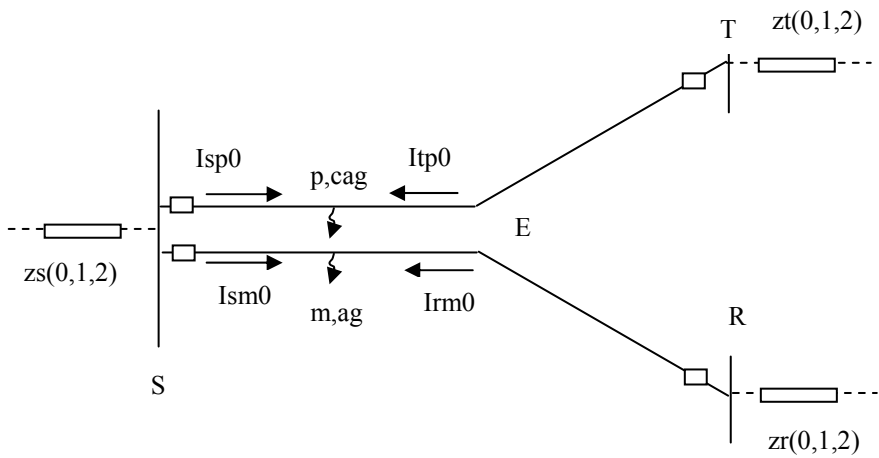


m(Tramo SE(SR)) ; p(Tramo SE(ST))

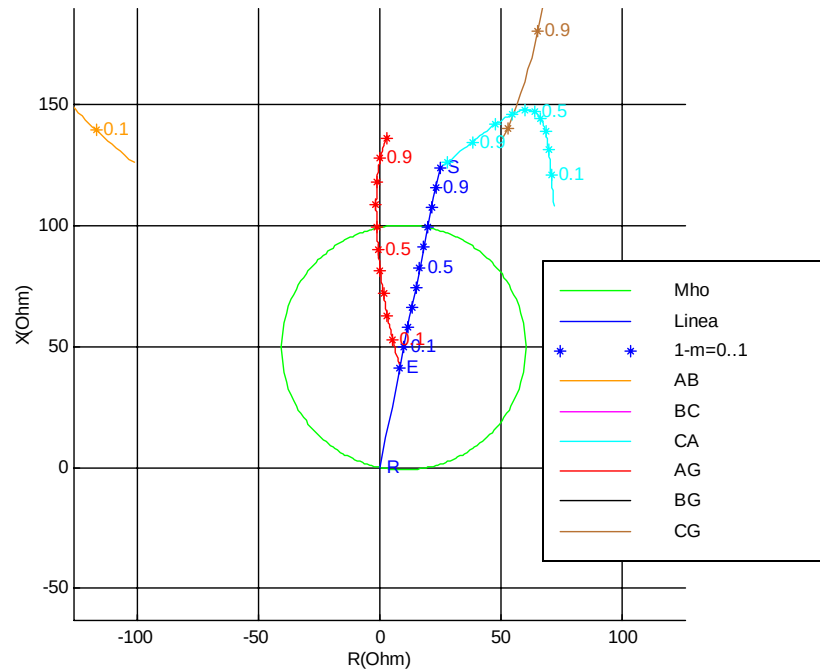
| Unidad    | AB | BC | CA   | AG           | BG | CG |
|-----------|----|----|------|--------------|----|----|
| Cobertura | -- | -- | 0.07 | >tramo<br>SE | -- | -- |

Programa PG44ic  
Salida Especial Faltas Diversas,Falta ag-cag: z02

Esquema:



PG44ic,21nc,220kV,kE=1.00,L1=200km,L2=100km,L3= 50km,Sccs=1000 ,Sccr=1000 ,Sctt=5000  
,Ks0=1.00,Kr0=1.00,k0=0.1 ,SE(SR),m:ag,Rfm=0 ,SE(ST),p:cag,Rfp=0 ,Rgp=0 ,Proteccion: Rm

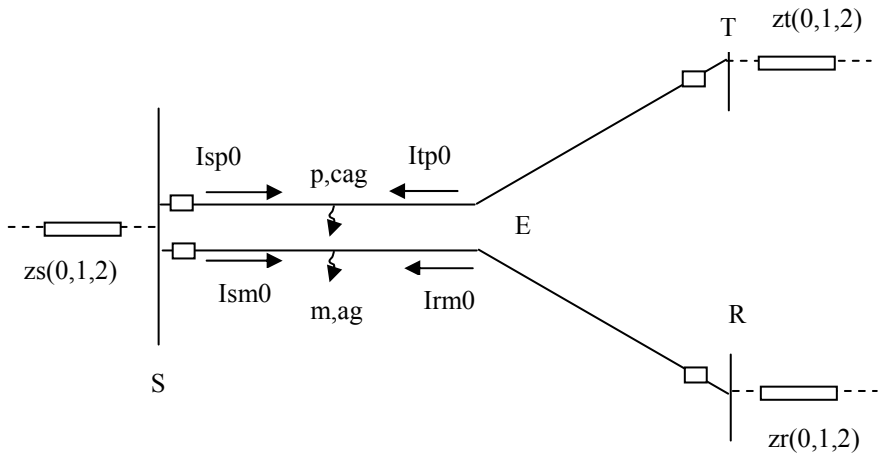


m(Tramo SE(SR)) ; p(Tramo SE(ST))

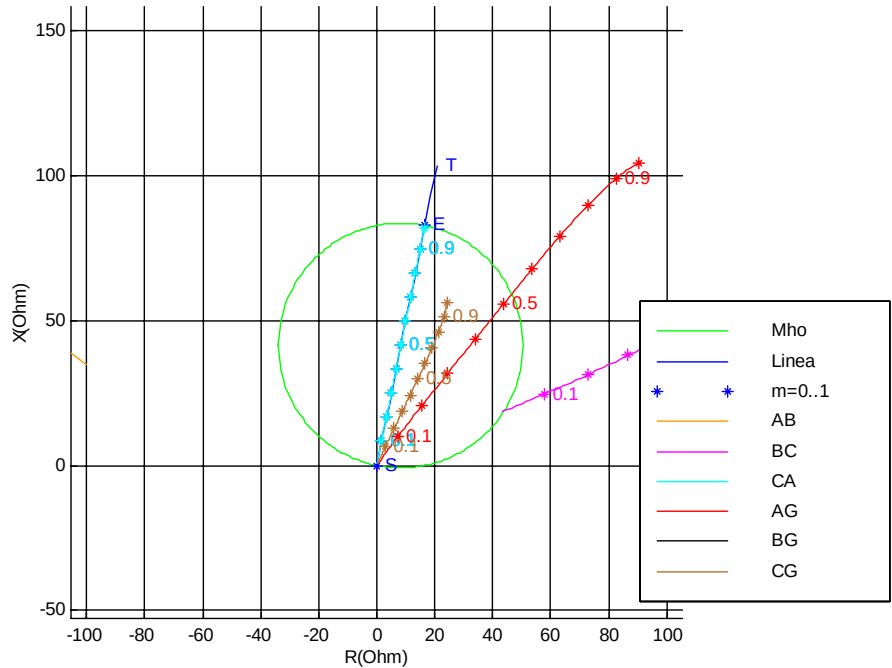
| Unidad    | AB | BC | CA | AG   | BG | CG |
|-----------|----|----|----|------|----|----|
| Cobertura | -- | -- | -- | 0.73 | -- | -- |

Programa PG44ic  
Salida Especial Faltas Diversas,Falta ag-cag: z03

Esquema:



PG44ic,21nc,220kV,kE=1.00,L1=200km,L2=100km,L3= 50km,Sccs=1000 ,Sccr=1000 ,Sctt=5000  
,Ks0=1.00,Kr0=1.00,k0=0.1 ,SE(SR),m:ag,Rfm=0 ,SE(ST),p:cag,Rfp=0 ,Rgp=0 ,Proteccion: Sp



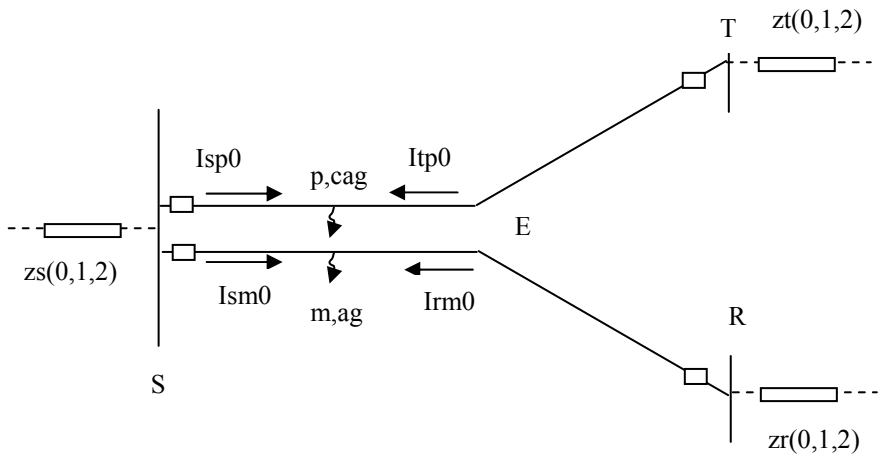
m(Tramo SE(SR)) ; p(Tramo SE(ST))

| Unidad    | AB | BC   | CA   | AG   | BG | CG        |
|-----------|----|------|------|------|----|-----------|
| Cobertura | -- | 0.01 | 0.80 | 0.42 | -- | >tramo SE |

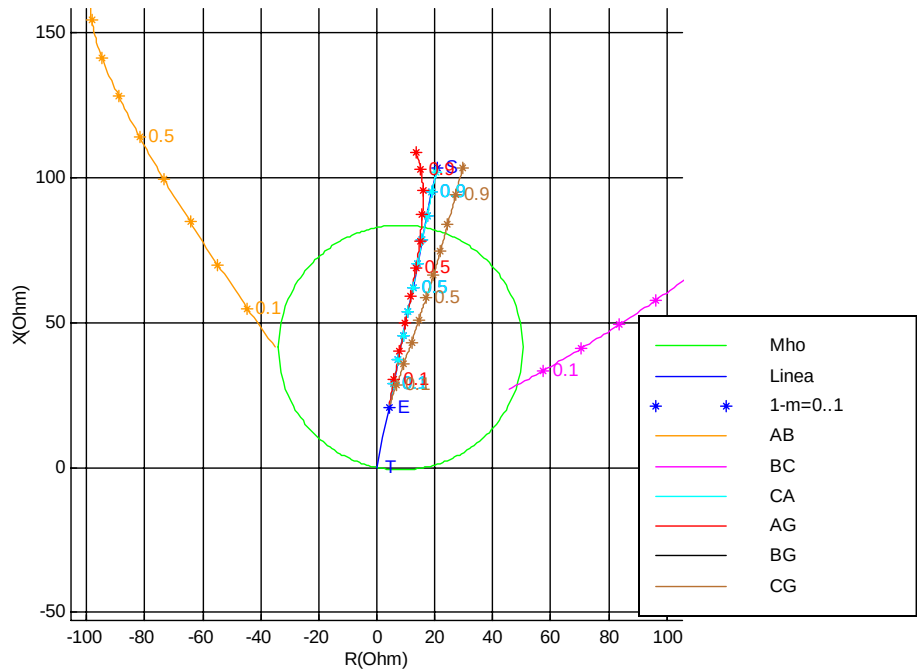


Programa PG44ic  
Salida Especial Faltas Diversas,Falta ag-cag: z04

Esquema:



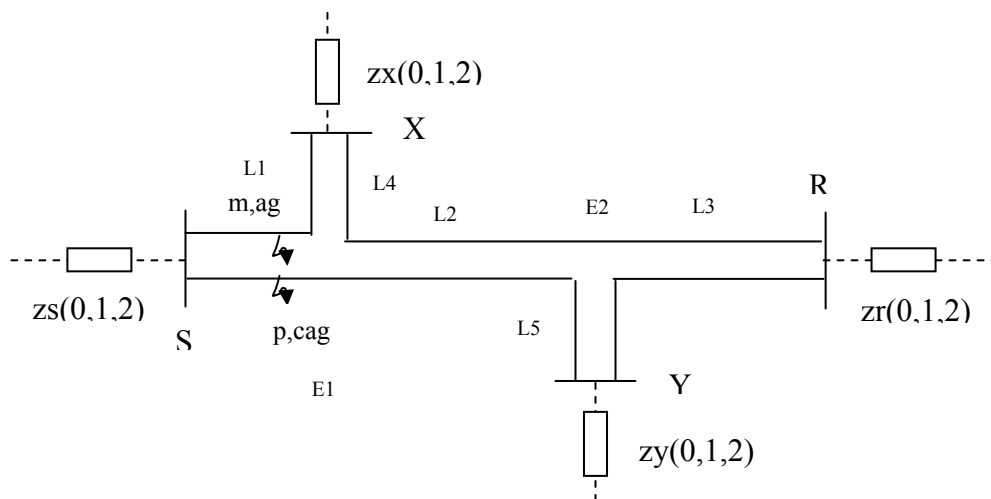
PG44ic,21nc,220kV,kE=1.00,L1=200km,L2=100km,L3= 50km,Scs=1000 ,Sccr=1000 ,Sctt=5000  
,Ks0=1.00,Kr0=1.00,k0=0.1 ,SE(SR),m:ag,Rfm=0 ,SE(ST),p:cag,Rfp=0 ,Rgp=0 ,Proteccion: Tp



m(Tramo SE(SR)) ; p(Tramo SE(ST))

| Unidad    | AB | BC   | CA   | AG   | BG | CG   |
|-----------|----|------|------|------|----|------|
| Cobertura | -- | 0.23 | 0.80 | 0.73 | -- | 0.82 |

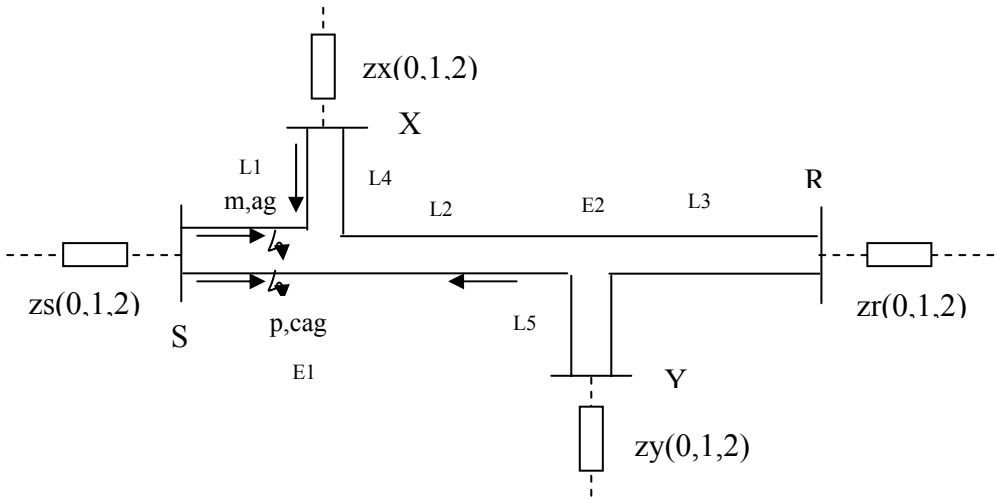
Esquema:



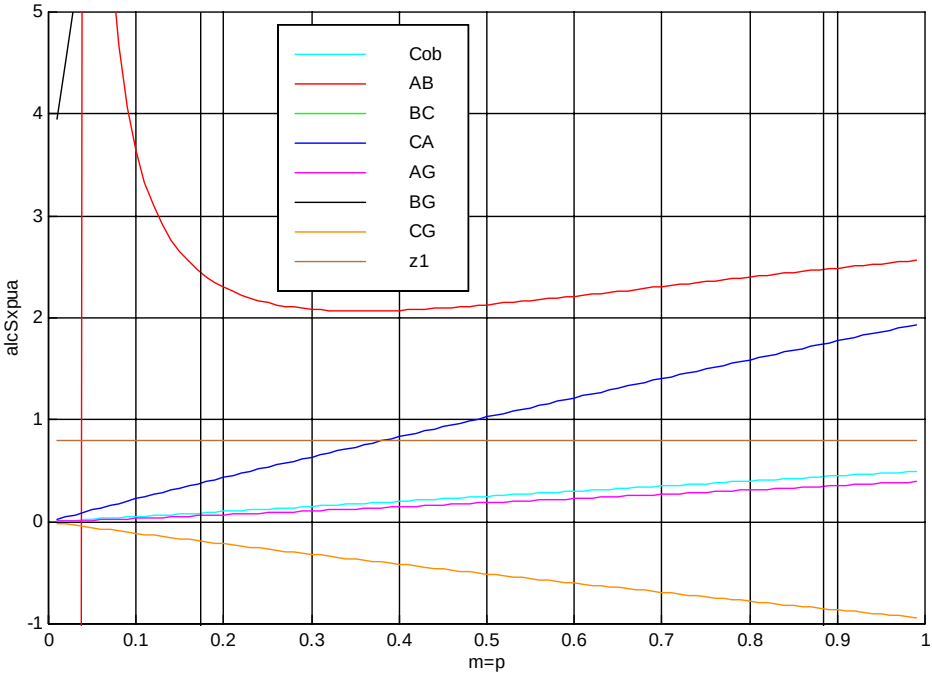
| PGc Casos Especiales 3: Faltas Diversas |                                                                                                                                                         |              |                   |  |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-------------------|--|
| Programa                                | PG54ic                                                                                                                                                  |              |                   |  |
| Entrada Standard                        | Un=220 kV, kE=1, L1=100 km, L2=100 km, L3=100 km, L4=100 km, L5=100 km, Sccs=5000 MVA, Sccx=5000 MVA, Sccr=5000 MVA, Sccy=5000 MVA, Kx0=1, Kr0=1, Ky0=1 |              |                   |  |
|                                         | Compensacion 21= No                                                                                                                                     |              |                   |  |
| Parámetro                               | k0 = zs0/zr0 = 10                                                                                                                                       |              |                   |  |
| Falta Doble<br>m=p                      | Falta m<br>T1<br>Linea Sup                                                                                                                              | m            | 0 . . . 1 (Tramo) |  |
|                                         |                                                                                                                                                         | Tipo         | ag                |  |
|                                         |                                                                                                                                                         | Elemento     | AG                |  |
|                                         |                                                                                                                                                         | Rfm          | 0                 |  |
|                                         |                                                                                                                                                         | Rgm          | --                |  |
|                                         | Falta p<br>T1<br>Linea Inf.                                                                                                                             | p            | 0 . . . 1 (Tramo) |  |
|                                         |                                                                                                                                                         | Tipo         | cag               |  |
|                                         |                                                                                                                                                         | Elemento     | CA                |  |
|                                         |                                                                                                                                                         | Rfm          | 0                 |  |
|                                         |                                                                                                                                                         | Rgm          | 0                 |  |
| Salida 2                                | 21 Todas las Unidades pua<br>AB,BC,CA,AG,BG,CG                                                                                                          | alcanceSxpua | f01               |  |
|                                         |                                                                                                                                                         | alcanceSypua | f02               |  |
|                                         |                                                                                                                                                         | alcanceXspua | f03               |  |
|                                         |                                                                                                                                                         | alcanceYspua | f04               |  |
| Salida 3                                | 67N                                                                                                                                                     | Sx           | n01               |  |
|                                         |                                                                                                                                                         | Sy           | n02               |  |
|                                         |                                                                                                                                                         | Xs           | n03               |  |
|                                         |                                                                                                                                                         | Ys           | n04               |  |
| Salida 4                                | 21 R-X                                                                                                                                                  | Sx           | z01               |  |
|                                         |                                                                                                                                                         | Sy           | z02               |  |
|                                         |                                                                                                                                                         | Xs           | z03               |  |
|                                         |                                                                                                                                                         | Ys           | z04               |  |

Programa: PG54ic  
Salida Especial Faltas Diversas, TramoT1, Falta ag-cag: f01

Esquema:



PG54ic,m=p,21nc,220kV,kE=1.00,L1=100km,L2=100km,L3=100km,L4=100km,L5=100km,Scxs=5000 ,Sccx=5000 ,Scrr=5000  
Scyy=5000 ,Kx0=1.00 ,Kr0=1.00 ,Ky0=1.00 ,k0=10.00 ,m: SE1(SX),ag,Rfm=0 , p: SE1(SY),cag,Rfp=0 ,Rgp=0

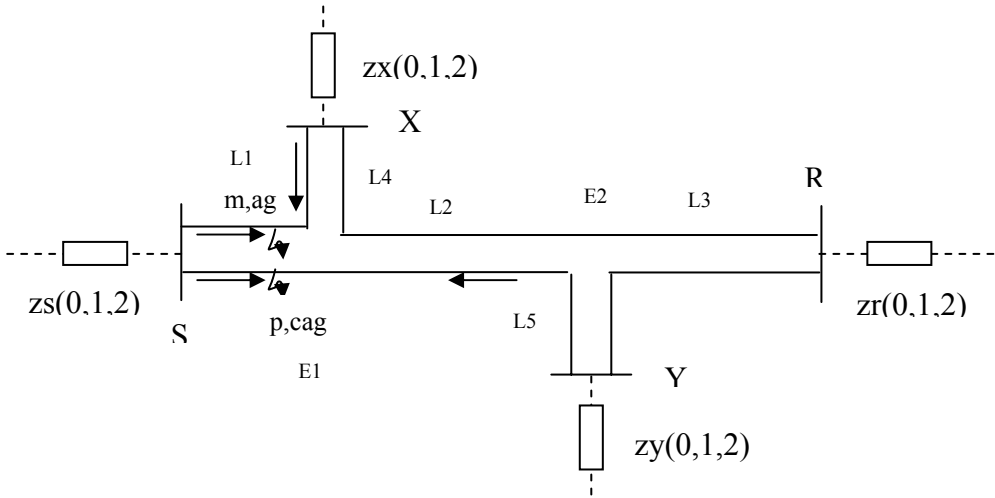


m(Tramo SE1(SX)) ; p(Tramo SE1(SY))

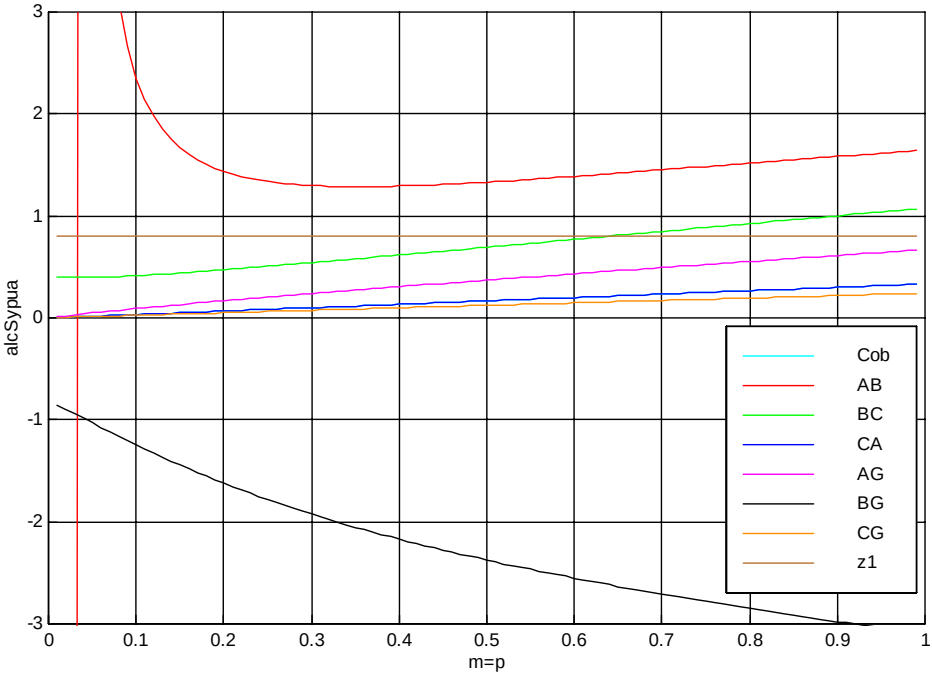
| Unidad    | AB | BC | CA   | AG            | BG | CG |
|-----------|----|----|------|---------------|----|----|
| Cobertura | -- | -- | 0.19 | >tramo<br>SE1 | -- | -- |

Programa: PG54ic  
Salida Especial Faltas Diversas, TramoT1, Falta ag-cag: f02

Esquema:



PG54ic,m=p,21nc,220kV,kE=1.00,L1=100km,L2=100km,L3=100km,L4=100km,L5=100km,Scxs=5000 ,Sccx=5000 ,Scrr=5000  
Scry=5000 ,Kx0=1.00 ,Kr0=1.00 ,Ky0=1.00 ,k0=10.00 ,m: SE1(SX),ag,Rfm=0 , p: SE1(SY),cag,Rfp=0 ,Rgp=0

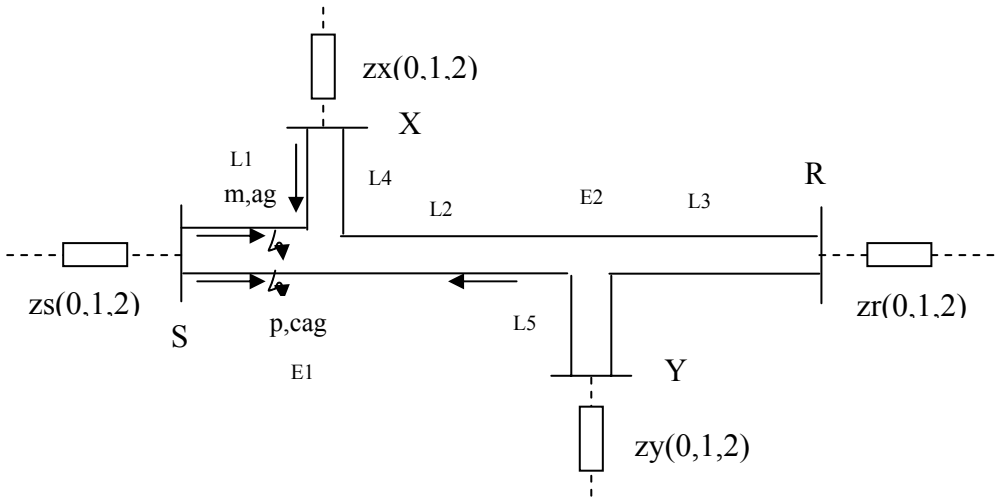


m(Tramo SE1(SX)) ; p(Tramo SE1(SY))

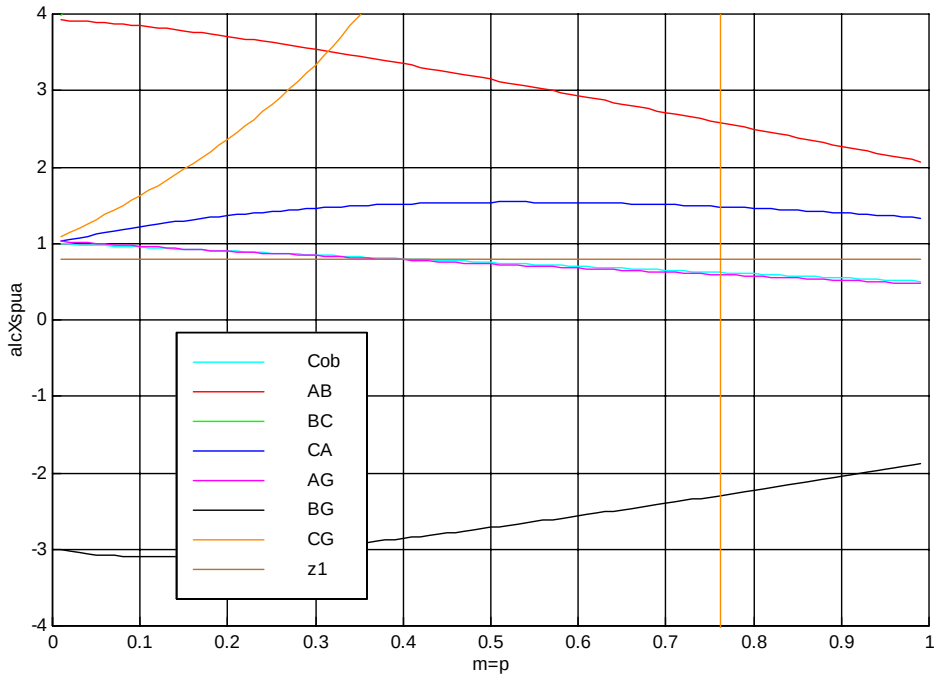
| Unidad    | AB | BC   | CA            | AG            | BG | CG            |
|-----------|----|------|---------------|---------------|----|---------------|
| Cobertura | -- | 0.21 | >tramo<br>SE1 | >tramo<br>SE1 | -- | >tramo<br>SE1 |

Programa: PG54ic  
Salida Especial Faltas Diversas, TramoT1, Falta ag-cag: f03

Esquema:



PG54ic,m=p,21nc,220kV,kE=1.00,L1=100km,L2=100km,L3=100km,L4=100km,L5=100km,Scxs=5000 ,Sccx=5000 ,Scrr=5000  
Scyy=5000 ,Kx0=1.00 ,Kr0=1.00 ,Ky0=1.00 ,k0=10.00 ,m: SE1(SX),ag,Rfm=0 , p: SE1(SY),cag,Rfp=0 ,Rgp=0

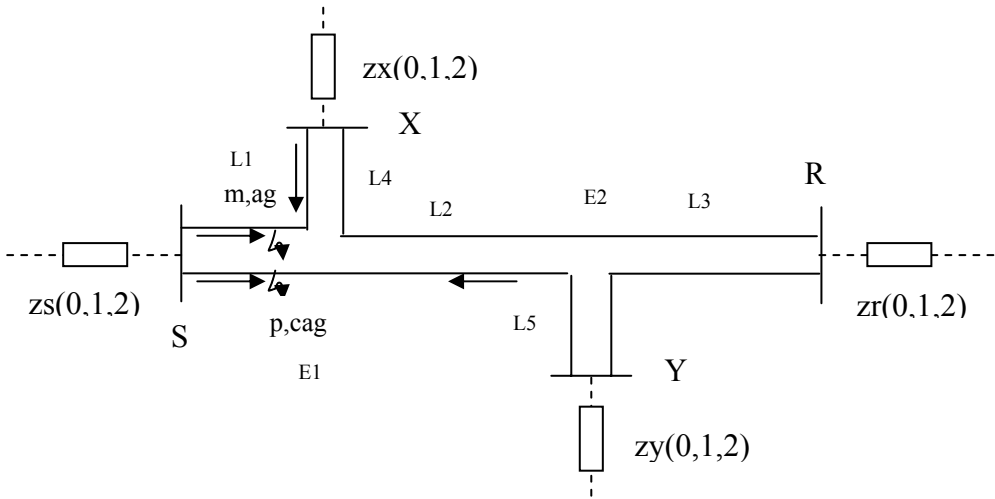


m(Tramo SE1(SX)) ; p(Tramo SE1(SY))

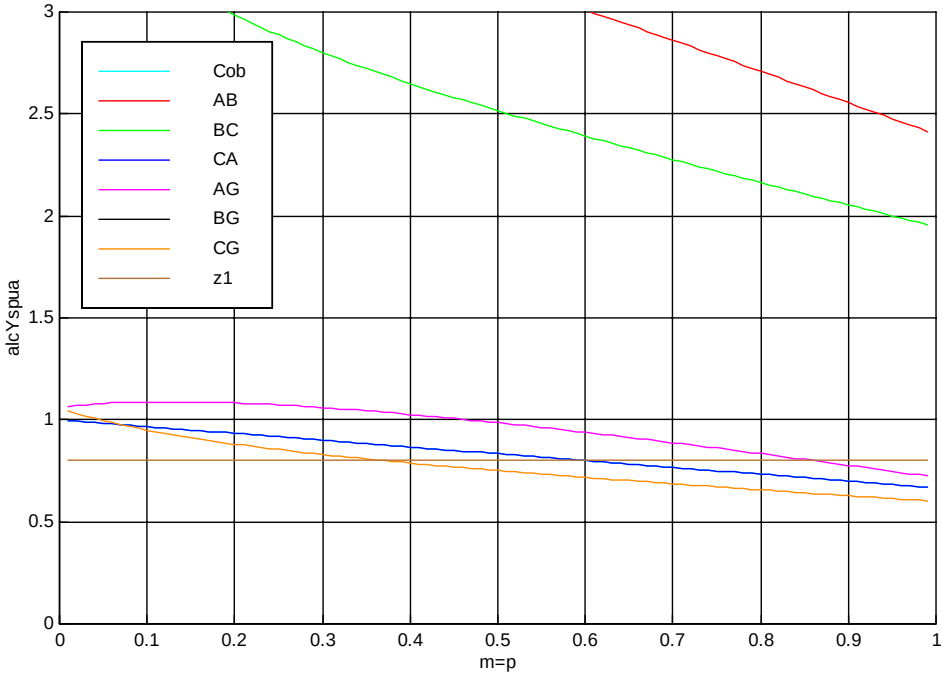
| Unidad    | AB | BC | CA | AG   | BG | CG |
|-----------|----|----|----|------|----|----|
| Cobertura | -- | -- | -- | 0.80 | -- | -- |

Programa: PG54ic  
Salida Especial Faltas Diversas, TramoT1, Falta ag-cag: f04

Esquema:



PG54ic,m=p,21nc,220kV,kE=1.00,L1=100km,L2=100km,L3=100km,L4=100km,L5=100km,Scxs=5000 ,Sccx=5000 ,Scsr=5000  
Scsy=5000 ,Kx0=1.00 ,Kr0=1.00 ,Ky0=1.00 ,k0=10.00 ,m: SE1(SX),ag,Rfm=0 , p: SE1(SY),cag,Rfp=0 ,Rgp=0



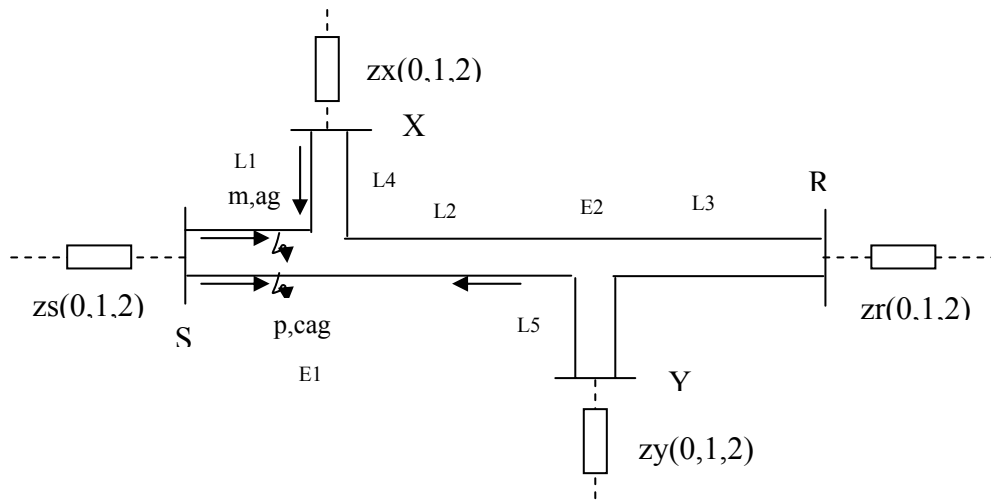
m(Tramo SE1(SX)) ; p(Tramo SE1(SY))

| Unidad    | AB | BC | CA   | AG   | BG | CG   |
|-----------|----|----|------|------|----|------|
| Cobertura | -- | -- | 0.80 | 0.71 | -- | 0.88 |

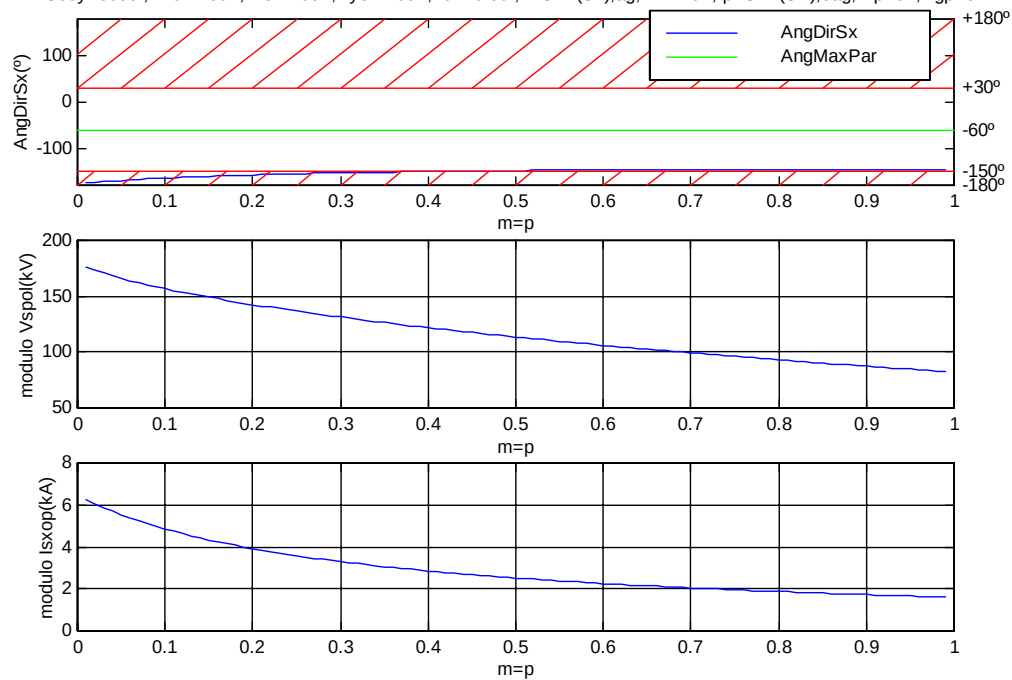
Programa: PG54ic

Salida Especial Faltas Diversas, TramoT1, Falta ag-cag: n01

Esquema:



PG54ic, m=p, 67N, 220kV, kE=1.00, L1=100km, L2=100km, L3=100km, L4=100km, L5=100km, Scxs=5000, Sccx=5000, Scrr=5000, Scyy=5000, Kx0=1.00, Kr0=1.00, Ky0=1.00, k0=10.00, m:SE1(SX), ag, Rfm=0, p: SE1(SY), cag, Rfp=0, Rgp=0



m(Tramo SE1(SX)) ; p(Tramo SE1(SY))

Direccionalidad: No (critica)

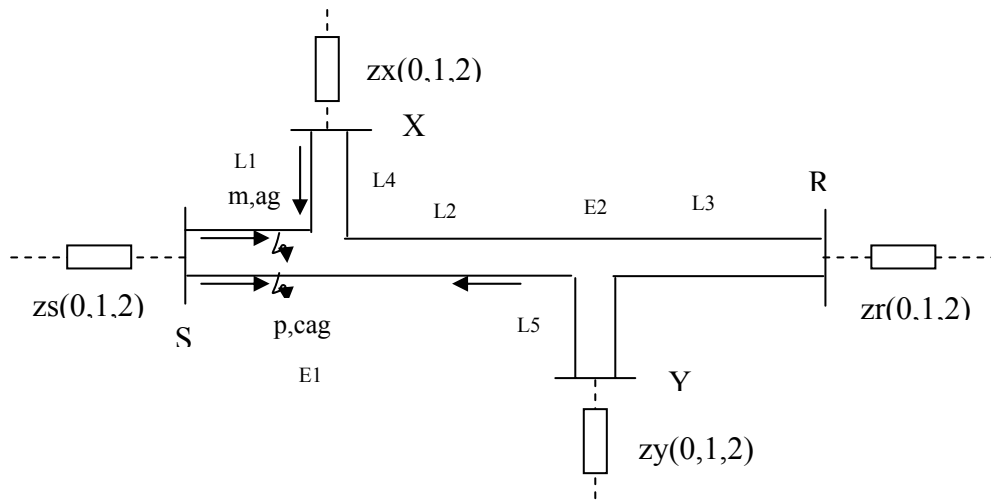
Sensibilidad de Tensión : decreciente (con m)

Sensibilidad de Corriente: decreciente (con m)

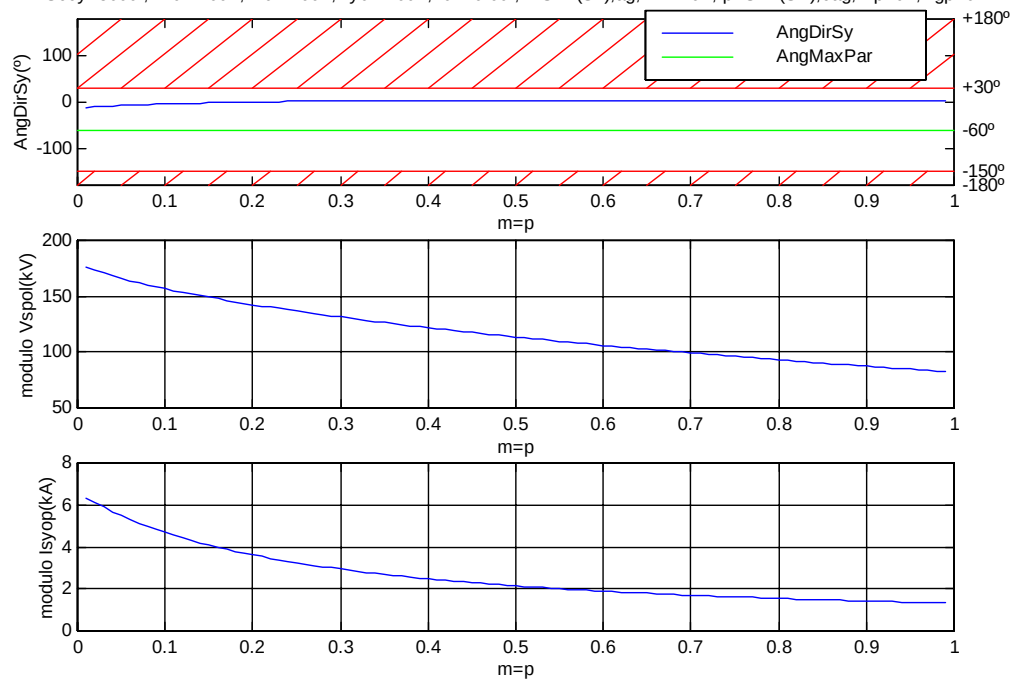
Programa: PG54ic

Salida Especial Faltas Diversas, TramoT1, Falta ag-cag: n02

Esquema:



PG54ic,m=p,67N,220kV,kE=1.00,L1=100km,L2=100km,L3=100km,L4=100km,L5=100km,Sccs=5000 ,Sccx=5000 ,Sccr=5000  
 Sccy=5000 ,Kx0=1.00 ,Kr0=1.00 ,Ky0=1.00 ,k0=10.00 ,m:SE1(SX),ag, Rfm=0 , p: SE1(SY),cag,Rfp=0 ,Rgp=0



m(Tramo SE1(SX)) ; p(Tramo SE1(SY))

Direccionalidad: p=m=0...1

Sensibilidad de Tensión : decreciente (con p=m)

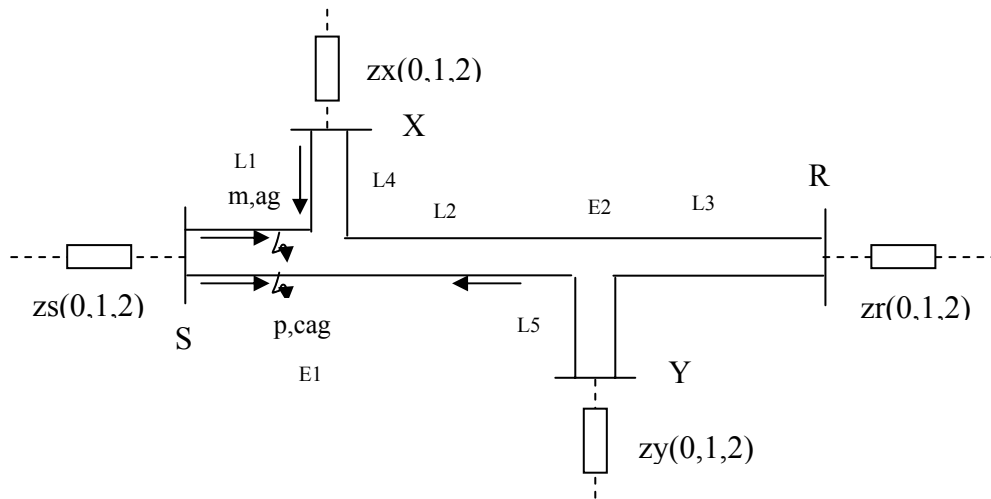
Sensibilidad de Corriente: decreciente (con p=m)



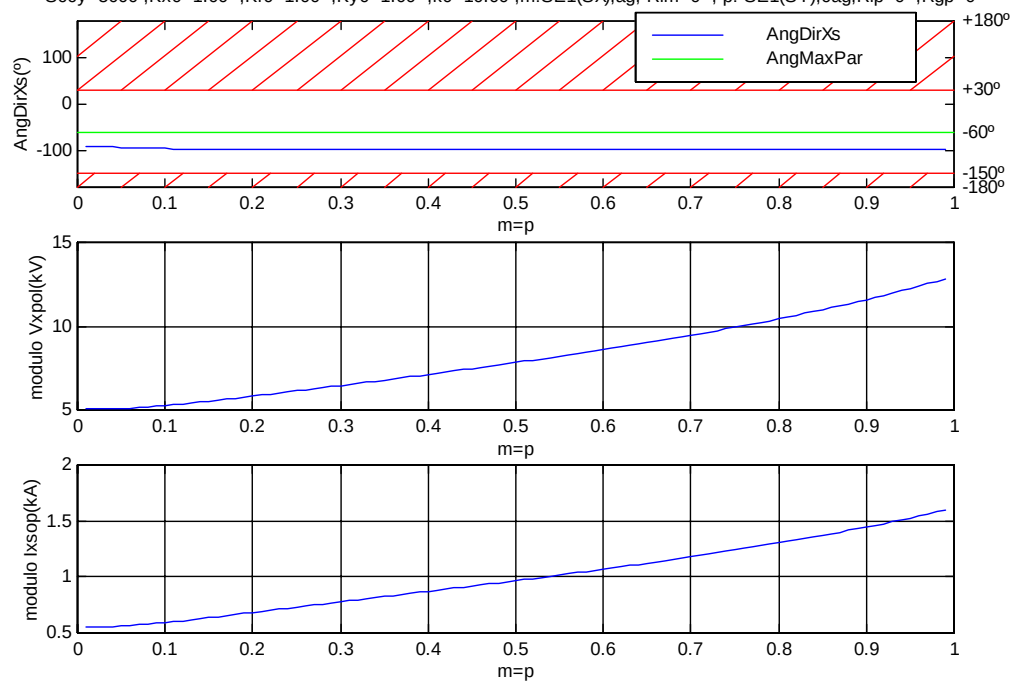
Programa: PG54ic

Salida Especial Faltas Diversas, TramoT1, Falta ag-cag: n03

Esquema:



PG54ic,m=p,67N,220kV,kE=1.00,L1=100km,L2=100km,L3=100km,L4=100km,L5=100km,Sccs=5000 ,Sccx=5000 ,Sccr=5000  
 Sccy=5000 ,Kx0=1.00 ,Kr0=1.00 ,Ky0=1.00 ,k0=10.00 ,m:SE1(SX),ag, Rfm=0 , p: SE1(SY),cag,Rfp=0 ,Rgp=0



m(Tramo SE1(SX)) ; p(Tramo SE1(SY))

Direccionalidad: 1-m=0...1

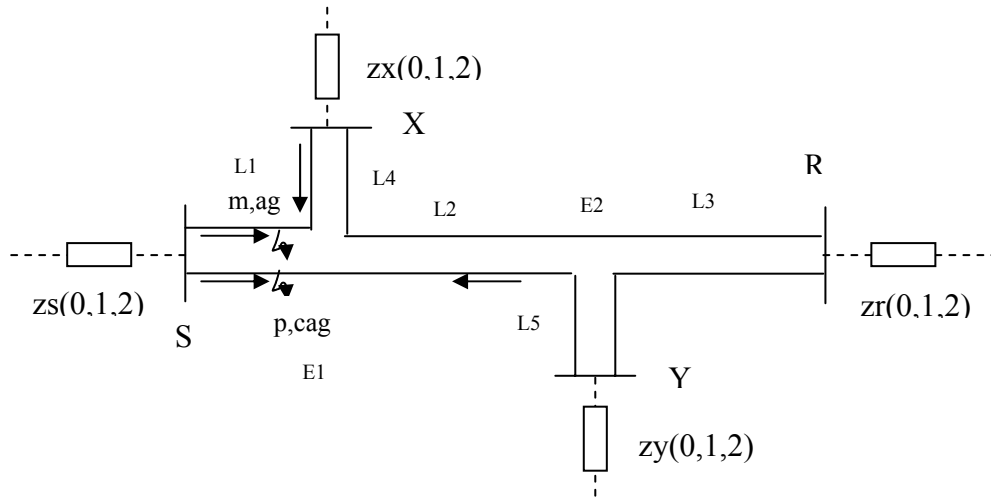
Sensibilidad de Tensión : decreciente (con 1-m) ; crítica al final

Sensibilidad de Corriente: decreciente (con 1-m) ; crítica al final

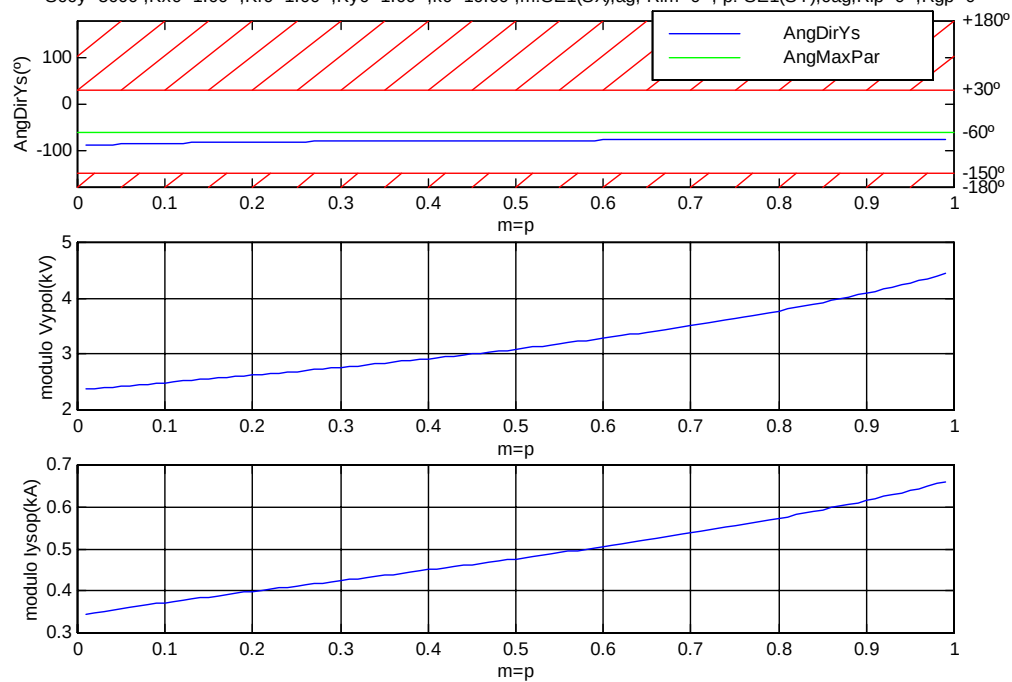
Programa: PG54ic

Salida Especial Faltas Diversas, TramoT1, Falta ag-cag: n04

Esquema:



PG54ic, m=p, 67N, 220kV, kE=1.00, L1=100km, L2=100km, L3=100km, L4=100km, L5=100km, Scsx=5000, Scsx=5000, Scsx=5000, Scsy=5000, Kx0=1.00, Kr0=1.00, Ky0=1.00, k0=10.00, m:SE1(SX), ag, Rfm=0, p: SE1(SY), cag, Rfp=0, Rgp=0



m(Tramo SE1(SX)) ; p(Tramo SE1(SY))

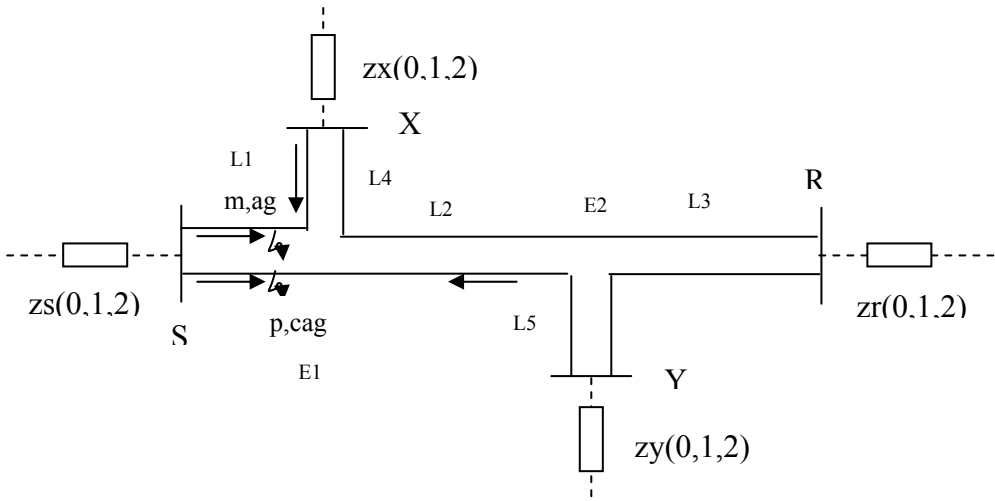
Direccionalidad: p=m=0...1

Sensibilidad de Tensión : decreciente (con 1-p=1- m)

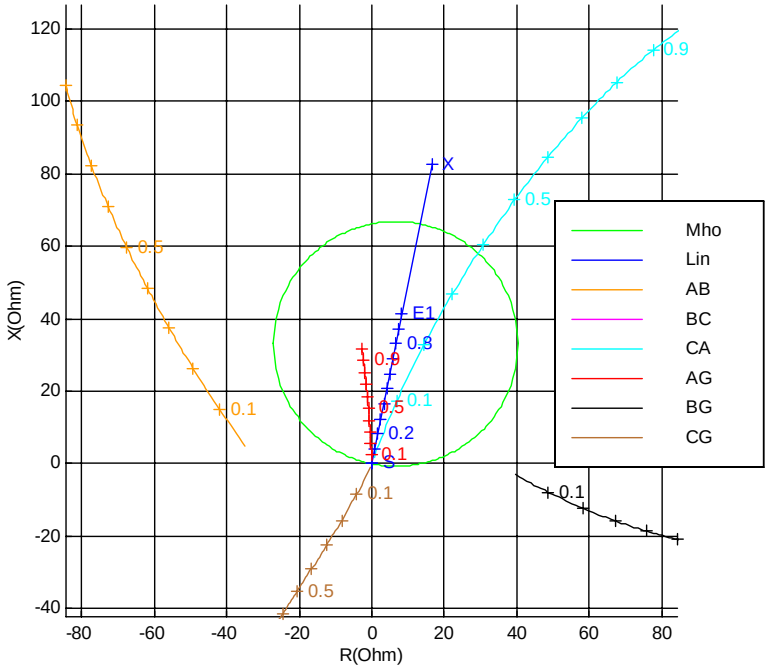
Sensibilidad de Corriente: decreciente (con 1-p=1-m)

Programa: PG54ic  
Salida Especial Faltas Diversas, TramoT1, Falta ag-cag: z01

Esquema:



PG54ic,m=p,21nc,220kV,kE=1.00,L1=100km,L2=100km,L3=100km,L4=100km,L5=100km,Sccs=5000 ,Sccx=5000 ,Sccr=5000  
Sccy=5000 ,Kx0=1.00 ,Kr0=1.00 ,Ky0=1.00 ,k0=10.00 ,m: SE1(SX),ag,Rfm=0 , p: SE1(SY),cag,Rfp=0 ,Rgp=0 ,Extr: Sx

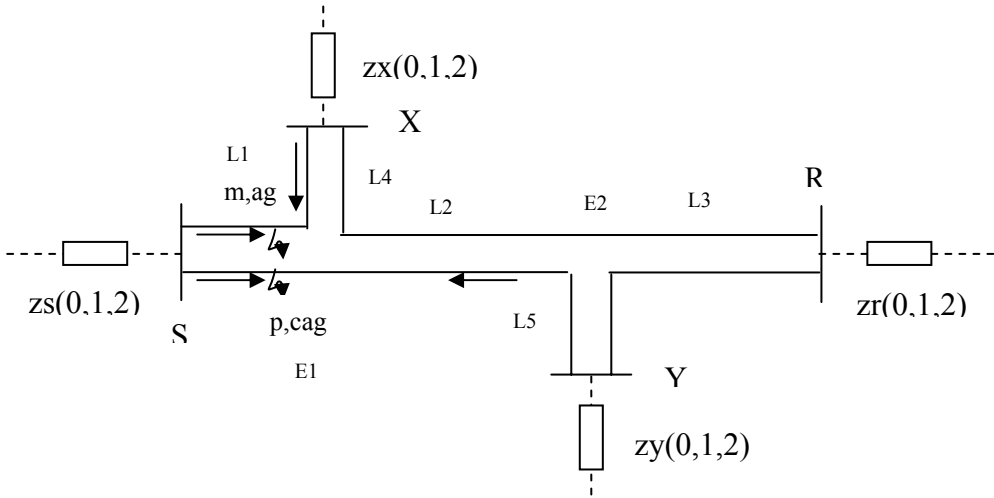


m(Tramo SE1(SX)) ; p(Tramo SE1(SY))

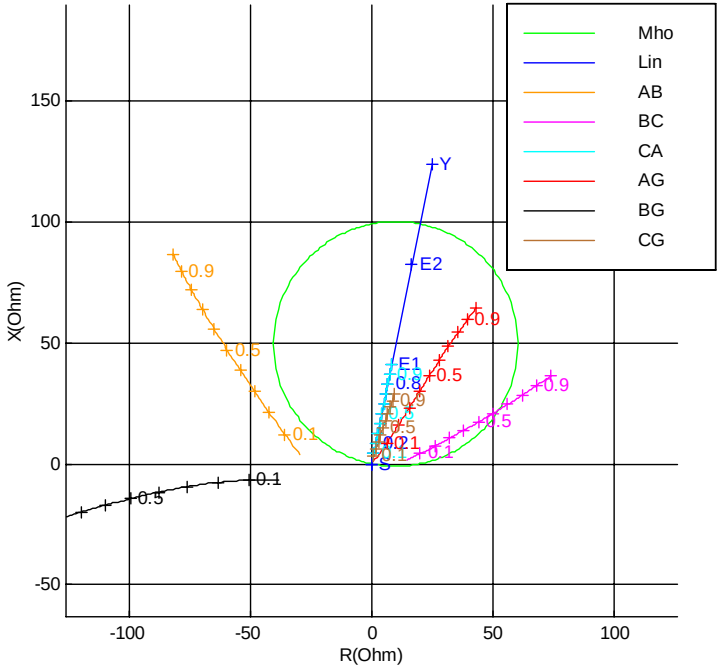
| Unidad    | AB | BC | CA   | AG            | BG | CG |
|-----------|----|----|------|---------------|----|----|
| Cobertura | -- | -- | 0.19 | >tramo<br>SE1 | -- | -- |

Programa: PG54ic  
Salida Especial Faltas Diversas, TramoT1, Falta ag-cag: z02

Esquema:



PG54ic,m=p,21nc,220kV,kE=1.00,L1=100km,L2=100km,L3=100km,L4=100km,L5=100km,Scsx=5000 ,Scsx=5000 ,Scsx=5000  
Scsy=5000 ,Kx0=1.00 ,Kr0=1.00 ,Ky0=1.00 ,k0=10.00 ,m: SE1(SX),ag,Rfm=0 , p: SE1(SY),cag,Rfp=0 ,Rgp=0 ,Extr: Sy

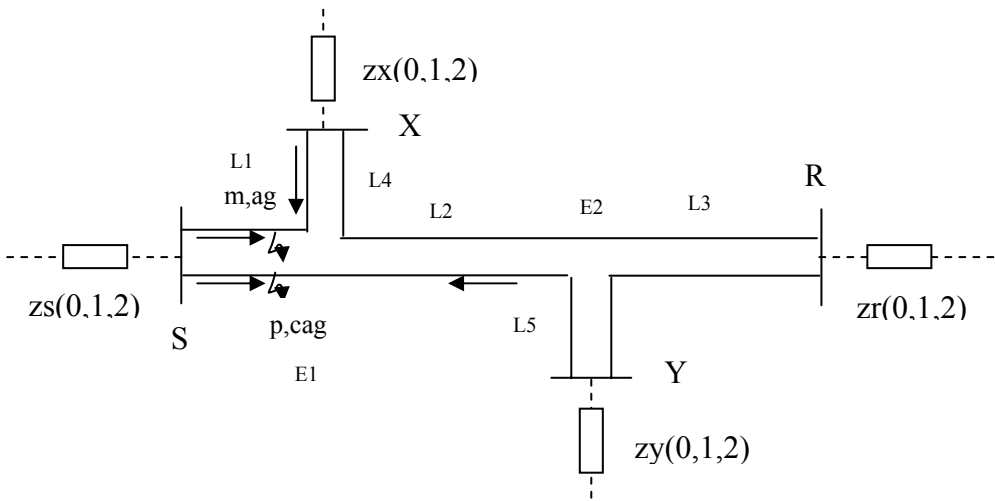


m(Tramo SE1(SX)) ; p(Tramo SE1(SY))

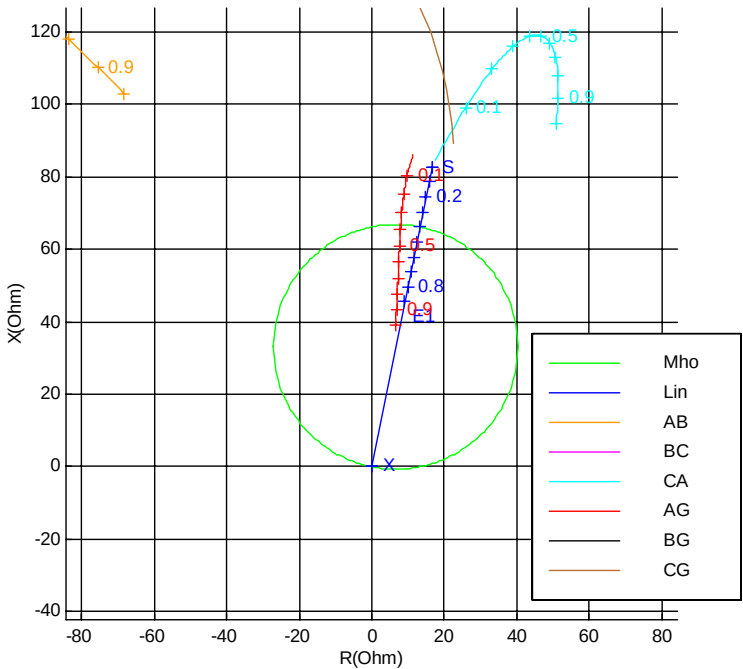
| Unidad    | AB | BC   | CA            | AG            | BG | CG            |
|-----------|----|------|---------------|---------------|----|---------------|
| Cobertura | -- | 0.21 | >tramo<br>SE1 | >tramo<br>SE1 | -- | >tramo<br>SE1 |

Programa: PG54ic  
Salida Especial Faltas Diversas, TramoT1, Falta ag-cag: z03

Esquema:



PG54ic,m=p,21nc,220kV,kE=1.00,L1=100km,L2=100km,L3=100km,L4=100km,L5=100km,Scs=5000 ,Sccx=5000 ,Sccr=5000  
Sccy=5000 ,Kx0=1.00 ,Kr0=1.00 ,Ky0=1.00 ,k0=10.00 ,m: SE1(SX),ag,Rfm=0 , p: SE1(SY),cag,Rfp=0 ,Rgp=0 ,Extr: Xs

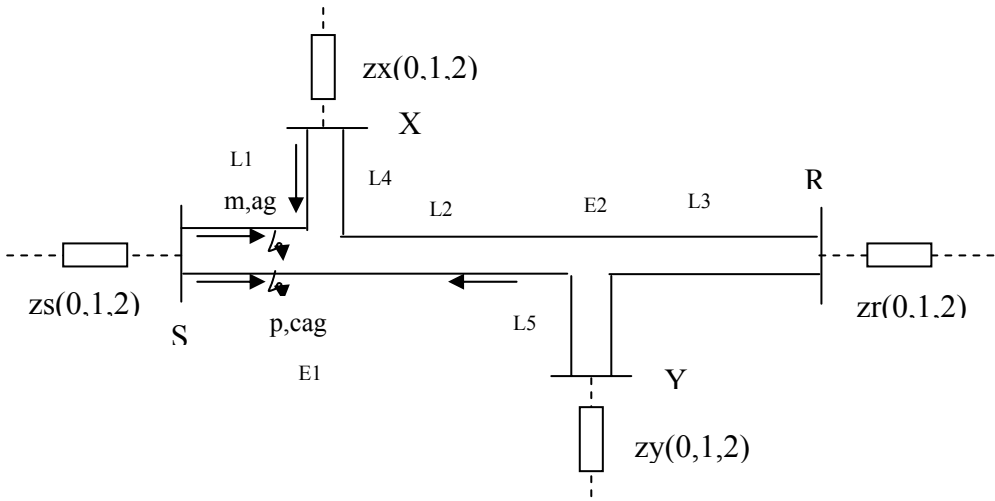


m(Tramo SE1(SX)) ; p(Tramo SE1(SY))

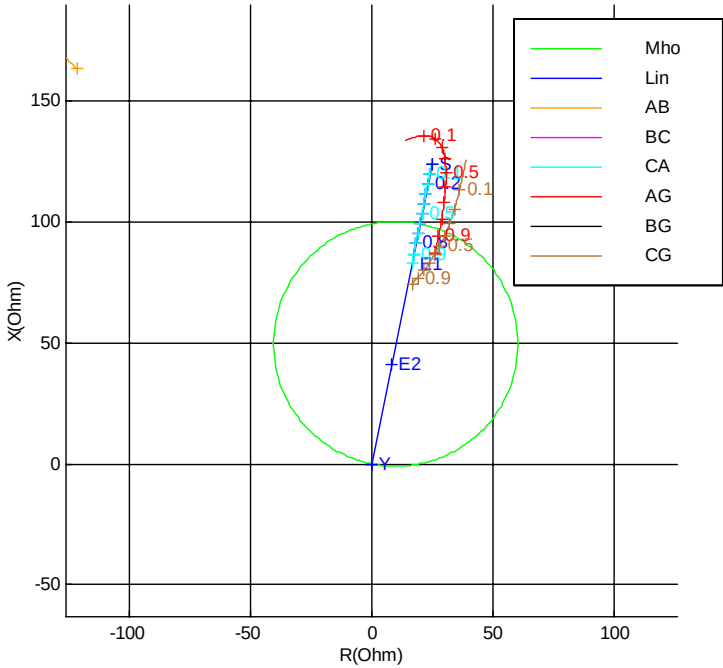
|           |    |    |    |      |    |    |
|-----------|----|----|----|------|----|----|
| Unidad    | AB | BC | CA | AG   | BG | CG |
| Cobertura | -- | -- | -- | 0.80 | -- | -- |

Programa: PG54ic  
Salida Especial Faltas Diversas, TramoT1, Falta ag-cag: z04

Esquema:



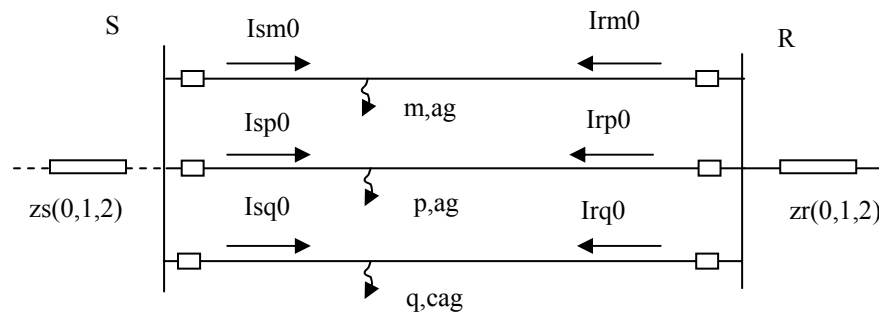
PG54ic,m=p,21nc,220kV,kE=1.00,L1=100km,L2=100km,L3=100km,L4=100km,L5=100km,Sccs=5000 ,Sccx=5000 ,Sccr=5000  
Sccy=5000 ,Kx0=1.00 ,Kr0=1.00 ,Ky0=1.00 ,k0=10.00 ,m: SE1(SX),ag,Rfm=0 , p: SE1(SY),cag,Rfp=0 ,Rgp=0 ,Extr: Ys



m(Tramo SE1(SX)) ; p(Tramo SE1(SY))

| Unidad    | AB | BC | CA   | AG   | BG | CG   |
|-----------|----|----|------|------|----|------|
| Cobertura | -- | -- | 0.80 | 0.71 | -- | 0.88 |

Esquema:



| PGc Casos Especiales 3: Faltas Diversas |                                                         |              |           |  |
|-----------------------------------------|---------------------------------------------------------|--------------|-----------|--|
| Programa                                | PG173ic                                                 |              |           |  |
| Entrada Standard                        | Un=220 kV, kE=1, L=220 km, Sccs=5000 MVA, Sccr=5000 MVA |              |           |  |
|                                         | Kr0=1                                                   |              |           |  |
|                                         | zsr= $\infty$                                           |              |           |  |
| Compensación 21= No                     |                                                         |              |           |  |
| Parámetro                               | k0 = zs0/zr0 = 10                                       |              |           |  |
| Falta Triple<br>m=p=q                   | Falta m<br>Línea SR I                                   | m            | 0 . . . 1 |  |
|                                         |                                                         | Tipo         | ag        |  |
|                                         |                                                         | Elemento     | AG        |  |
|                                         |                                                         | Rfm          | 0         |  |
|                                         |                                                         | Rgm          | --        |  |
|                                         | Falta p<br>Línea SR II                                  | p            | 0 . . . 1 |  |
|                                         |                                                         | Tipo         | ag        |  |
|                                         |                                                         | Elemento     | AG        |  |
|                                         |                                                         | Rfp          | 0         |  |
|                                         |                                                         | Rgp          | --        |  |
|                                         | Falta q<br>Línea SR III                                 | q            | 0 . . . 1 |  |
|                                         |                                                         | Tipo         | cag       |  |
|                                         |                                                         | Elemento     | CA        |  |
|                                         |                                                         | Rfq          | 0         |  |
|                                         |                                                         | Rgq          | 0         |  |
| Salida 1                                | 21 Salida pu<br>Unidad Preferente AG                    | alcanceSmpu  | a01       |  |
|                                         |                                                         | alcanceRmpu  |           |  |
|                                         | 21 Salida pu<br>Unidad Preferente AG                    | alcanceSppu  | a02       |  |
|                                         |                                                         | alcanceRppu  |           |  |
|                                         | 21 Salida pu<br>Unidad Preferente CG                    | alcanceSqpu  | a03       |  |
|                                         |                                                         | alcanceRqpu  |           |  |
| Salida 2                                | 21 Salida pua<br>Unidad Preferente AG                   | alcanceSmpua | b01       |  |
|                                         |                                                         | alcanceRmpua |           |  |
|                                         | 21 Salida pua<br>Unidad Preferente AG                   | alcanceSppua | b02       |  |
|                                         |                                                         | alcanceRppua |           |  |
|                                         | 21 Salida pua<br>Unidad Preferente CG                   | alcanceSqpu  | b03       |  |
|                                         |                                                         | alcanceRqpua |           |  |
| Continua en la pág. siguiente           |                                                         |              |           |  |

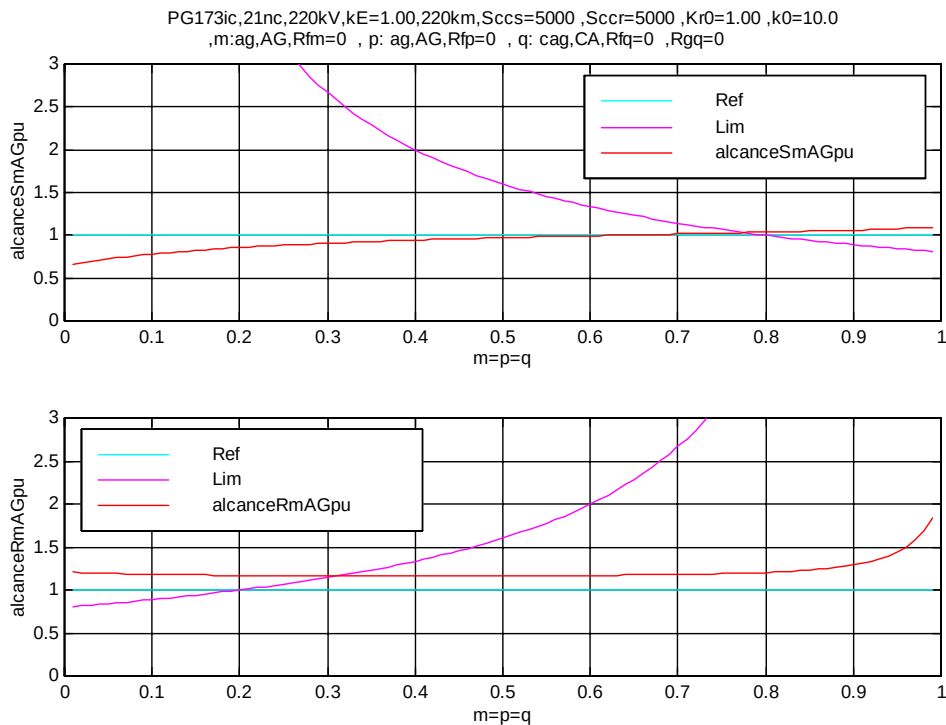
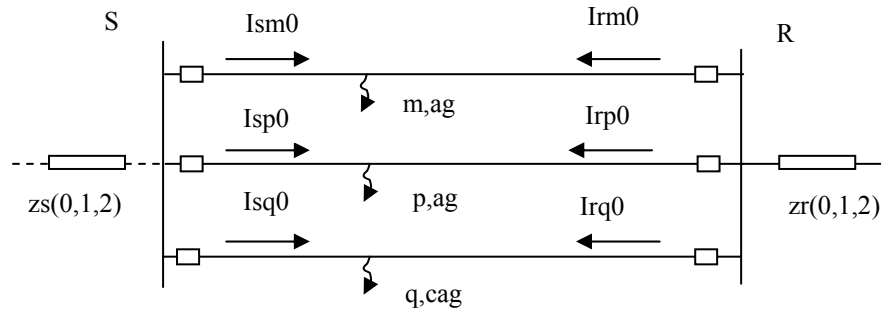
|                           |                                                          |              |     |
|---------------------------|----------------------------------------------------------|--------------|-----|
| Viene de la pág. anterior |                                                          |              |     |
| Salida 3                  | 21 Salida pua<br>Todas las Unidades<br>AB,BC,CA,AG,BG,CG | alcanceSmpua | f01 |
|                           |                                                          | alcanceSppua | f02 |
|                           |                                                          | alcanceSqpu  | f03 |
| Salida 4                  | 67N                                                      | Sm           | n01 |
|                           |                                                          | Sp           | n02 |
|                           |                                                          | Sq           | n03 |
| Salida 5                  | 21 R-X                                                   | Sm           | z01 |
|                           |                                                          | Sp           | z02 |
|                           |                                                          | Sq           | z03 |



Programa: PG173ic

Salida Especial Faltas Diversas, Falta ag-ag-cag: a01

Esquema:



Sm(AG): Falseamiento dependiendo de  $I_{sp0}(k0,m)$ ,  $I_{sq0}(k0,m)$  y de  $m=p=q$   
 $m = 0, \dots, 0.62 \rightarrow$  acerca, error decreciente (efectos de  $I_{sp0}$ ,  $I_{sq0}$  relativos a  $I_{sm0}$ )  
 $m = 0.62, \dots, 0.80 \rightarrow$  medidas prácticamente correctas (efectos de  $I_{sp0}$ ,  $I_{sq0}$  relativos a  $I_{sm0}$ )

$m = 0.80, \dots, 1 \rightarrow$  aleja, error creciente (efectos de  $I_{sp0}$ ,  $I_{sq0}$  relativos a  $I_{sm0}$ )

Paso a Zona 2:  $m=0.79$

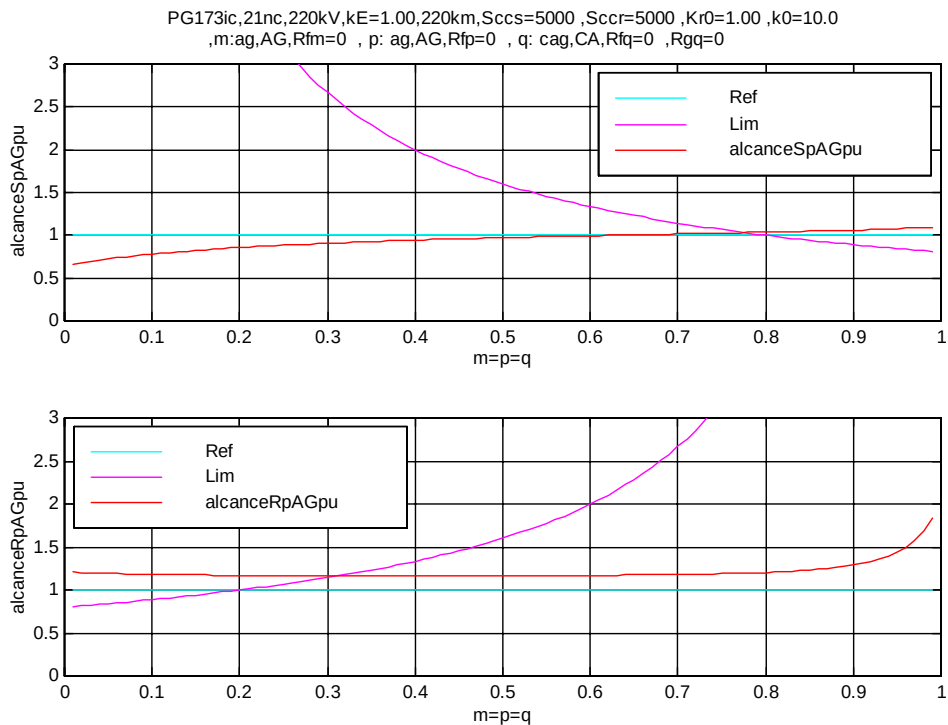
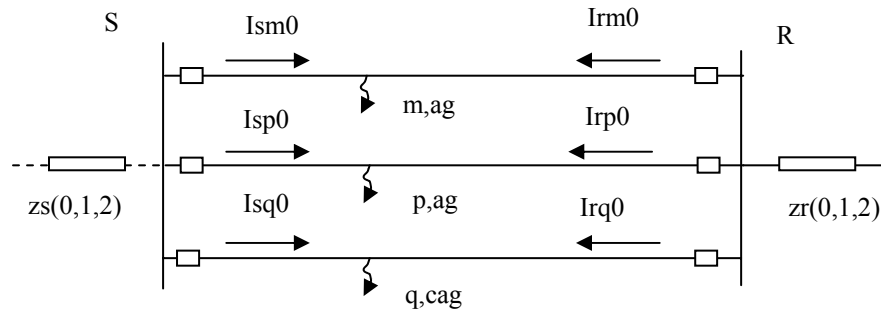
Rm(AG): Falseamiento dependiendo de  $I_{rp0}(k0,m)$ ,  $I_{rq0}(k0,m)$  y de  $m=p=q$   
 $1-m = 0, \dots, 1 \rightarrow$  aleja, error decreciente-creciente (efectos de  $I_{rp0}$ ,  $I_{rq0}$  relativos a  $I_{rm0}$ )

Paso a Zona 2:  $1-m=0.69$

Programa: PG173ic

Salida Especial Faltas Diversas, Falta ag-ag-cag: a02

Esquema:



Sp(AG): Falseamiento dependiendo de  $I_{sm0}(k0,m)$ ,  $I_{sq0}(k0,m)$  y de  $m=p=q$   
 $m = 0, \dots, 0.62 \rightarrow$  acerca, error decreciente (efectos de  $I_{sm0}$ ,  $I_{sq0}$  relativos a  $I_{sp0}$ )  
 $m = 0.62, \dots, 0.80 \rightarrow$  medidas prácticamente correctas (efectos de  $I_{sm0}$ ,  $I_{sq0}$  relativos a  $I_{sp0}$ )

$m = 0.80, \dots, 1 \rightarrow$  aleja, error creciente (efectos de  $I_{sm0}$ ,  $I_{sq0}$  relativos a  $I_{sp0}$ )

Paso a Zona 2:  $m=0.79$

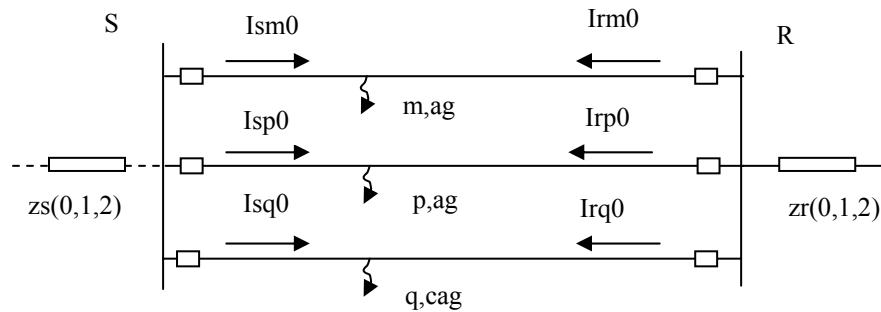
Rp(AG): Falseamiento dependiendo de  $I_{rm0}(k0,m)$ ,  $I_{rq0}(k0,m)$  y de  $m=p=q$   
 $1-m = 0, \dots, 1 \rightarrow$  aleja, error decreciente-creciente (efectos de  $I_{rm0}$ ,  $I_{rq0}$  relativos a  $I_{rp0}$ )

Paso a Zona 2:  $1-m=0.69$

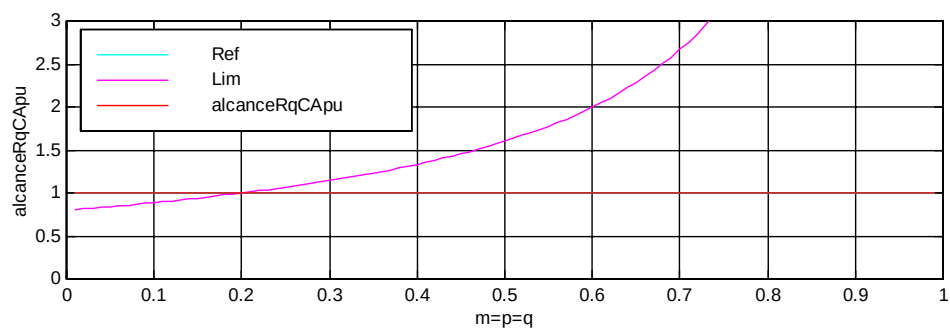
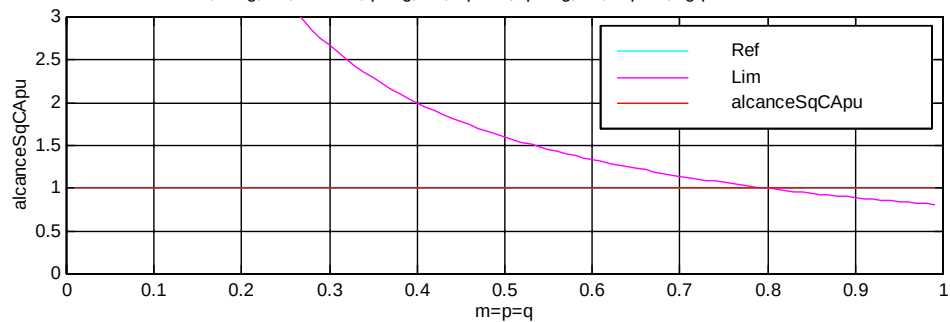
Programa: PG173ic

Salida Especial Faltas Diversas, Falta ag-ag-cag: a03

Esquema:



PG173ic, 21nc, 220kV,  $kE=1.00$ , 220km,  $S_{ccs}=5000$ ,  $S_{ccr}=5000$ ,  $Kr0=1.00$ ,  $k0=10.0$   
 $m: ag, AG, Rfm=0$ ,  $p: ag, AG, Rfp=0$ ,  $q: cag, CA, Rfq=0$ ,  $Rgq=0$



Sq(CA):

 $m = 0, \dots, 1 \rightarrow$  Medidas sin errorPaso a Zona 2:  $m=0.80$ 

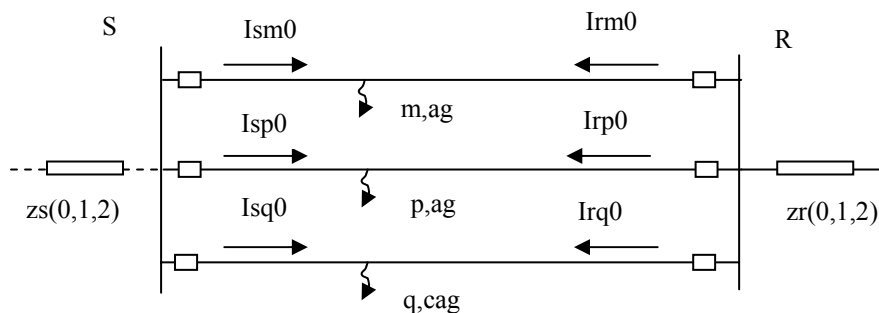
Rq(CA):

 $1-m = 0, \dots, 1 \rightarrow$  Medidas sin errorPaso a Zona 2:  $1-m=0.80$

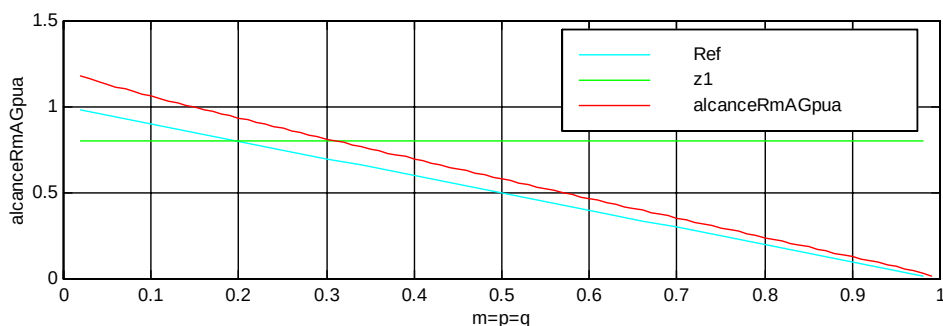
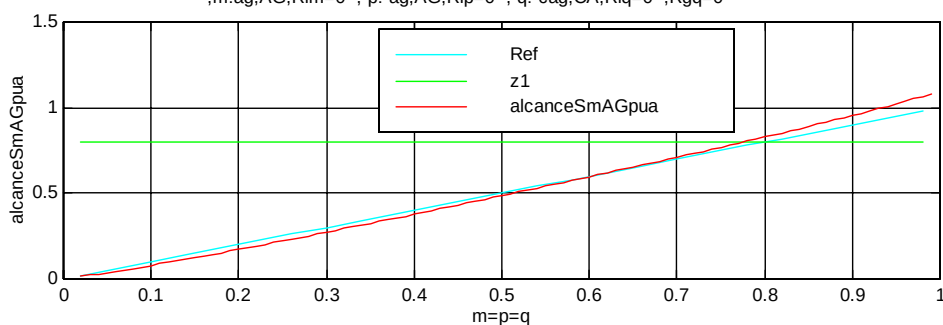
Programa: PG173ic

Salida Especial Faltas Diversas, Falta ag-ag-cag: b01

Esquema:



PG173ic, 21nc, 220kV, kE=1.00, 220km, Scs=5000, Sccr=5000, Kr0=1.00, k0=10.0  
 , m: ag, AG, Rfm=0 , p: ag, AG, Rfp=0 , q: cag, CA, Rfq=0 , Rgq=0



Sm(AG): Falseamiento dependiendo de  $I_{sp0}(k0,m)$ ,  $I_{sq0}(k0,m)$  y de  $m=p=q$   
 $m = 0, \dots, 0.62 \rightarrow$  acerca, error decreciente (efectos de  $I_{sp0}$ ,  $I_{sq0}$  relativos a  $I_{sm0}$ )  
 $m = 0.62, \dots, 0.80 \rightarrow$  medidas prácticamente correctas (efectos de  $I_{sp0}$ ,  $I_{sq0}$  relativos a  $I_{sm0}$ )

$m = 0.80, \dots, 1 \rightarrow$  aleja, error creciente (efectos de  $I_{sp0}$ ,  $I_{sq0}$  relativos a  $I_{sm0}$ )

Paso a Zona 2:  $m=0.79$

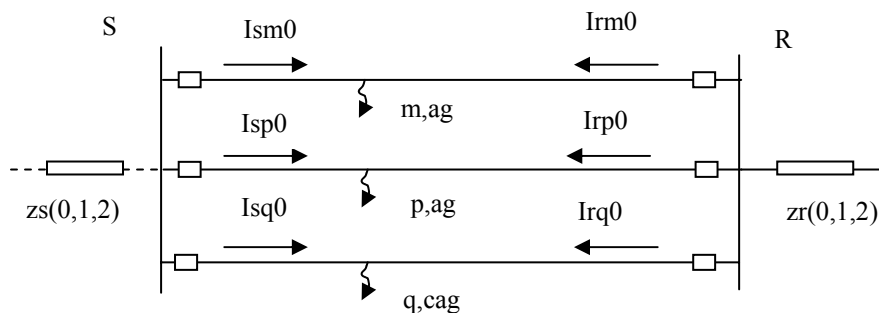
Rm(AG): Falseamiento dependiendo de  $I_{rp0}(k0,m)$ ,  $I_{rq0}(k0,m)$  y de  $m=p=q$   
 $1-m = 0, \dots, 1 \rightarrow$  aleja, error decreciente-creciente (efectos de  $I_{rp0}$ ,  $I_{rq0}$  relativos a  $I_{rm0}$ )

Paso a Zona 2:  $1-m=0.69$

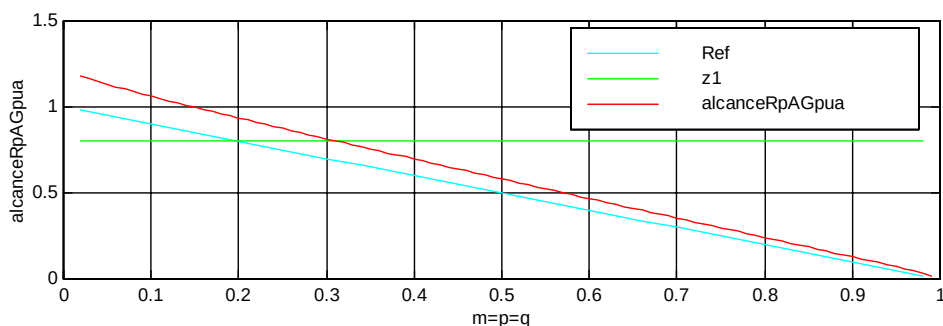
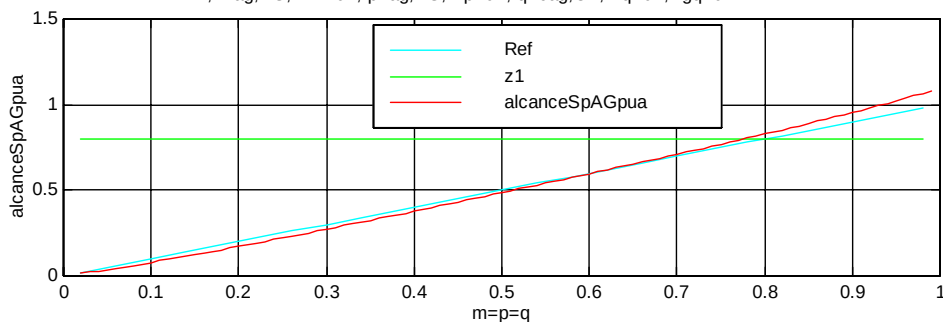
Programa: PG173ic

Salida Especial Faltas Diversas, Falta ag-ag-cag: b02

Esquema:



PG173ic, 21nc, 220kV, kE=1.00, 220km, Scs=5000, Sccr=5000, Kr0=1.00, k0=10.0  
 , m: ag, AG, Rfm=0 , p: ag, AG, Rfp=0 , q: cag, CA, Rfq=0 , Rgq=0



Sp(AG): Falseamiento dependiendo de  $I_{sm0}(k0,m)$ ,  $I_{sq0}(k0,m)$  y de  $m=p=q$

$m = 0, \dots, 0.62 \rightarrow$  acerca, error decreciente (efectos de  $I_{sm0}$ ,  $I_{sq0}$  relativos a  $I_{sp0}$ )

$m = 0.62, \dots, 0.80 \rightarrow$  medidas prácticamente correctas (efectos de  $I_{sm0}$ ,  $I_{sq0}$  relativos a  $I_{sp0}$ )

$m = 0.80, \dots, 1 \rightarrow$  aleja, error creciente (efectos de  $I_{sm0}$ ,  $I_{sq0}$  relativos a  $I_{sp0}$ )

Paso a Zona 2:  $m=0.79$

Rp(AG): Falseamiento dependiendo de  $I_{rm0}(k0,m)$ ,  $I_{rq0}(k0,m)$  y de  $m=p=q$

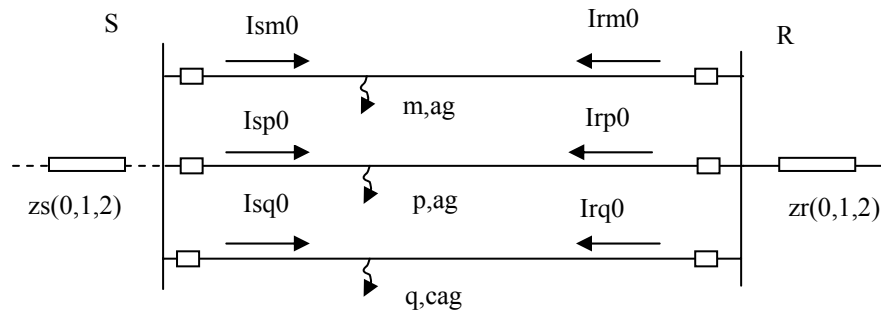
$1-m = 0, \dots, 1 \rightarrow$  aleja, error decreciente-creciente (efectos de  $I_{rm0}$ ,  $I_{rq0}$  relativos a  $I_{rp0}$ )

Paso a Zona 2:  $1-m=0.69$

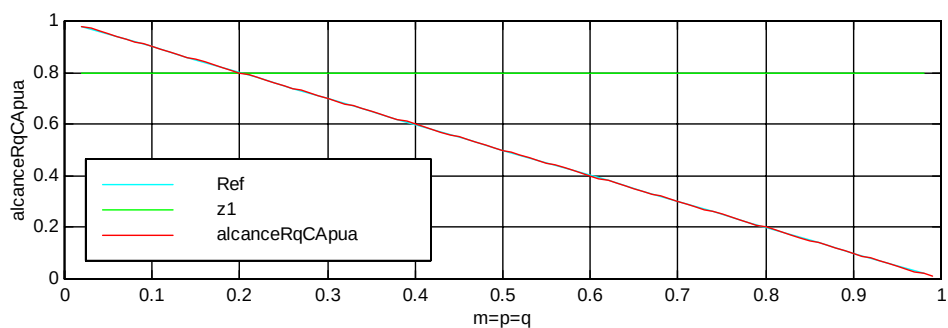
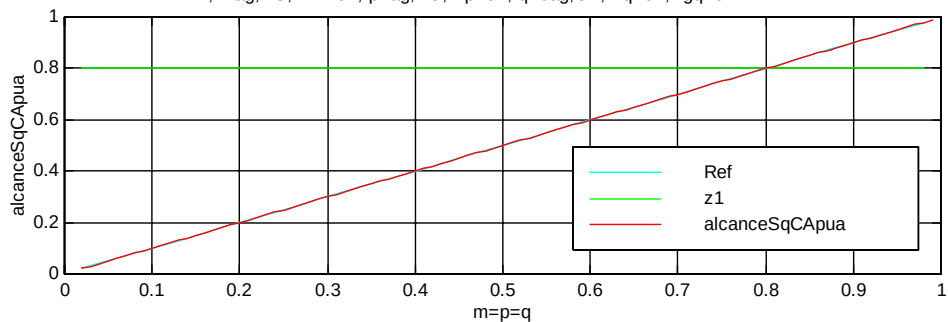
Programa: PG173ic

Salida Especial Faltas Diversas, Falta ag-ag-cag: b03

Esquema:



PG173ic, 21nc, 220kV, kE=1.00, 220km, Scs=5000, Sccr=5000, Kr0=1.00, k0=10.0  
 , m: ag, AG, Rfm=0 , p: ag, AG, Rfp=0 , q: cag, CA, Rfq=0 , Rgq=0



Sq(CA):

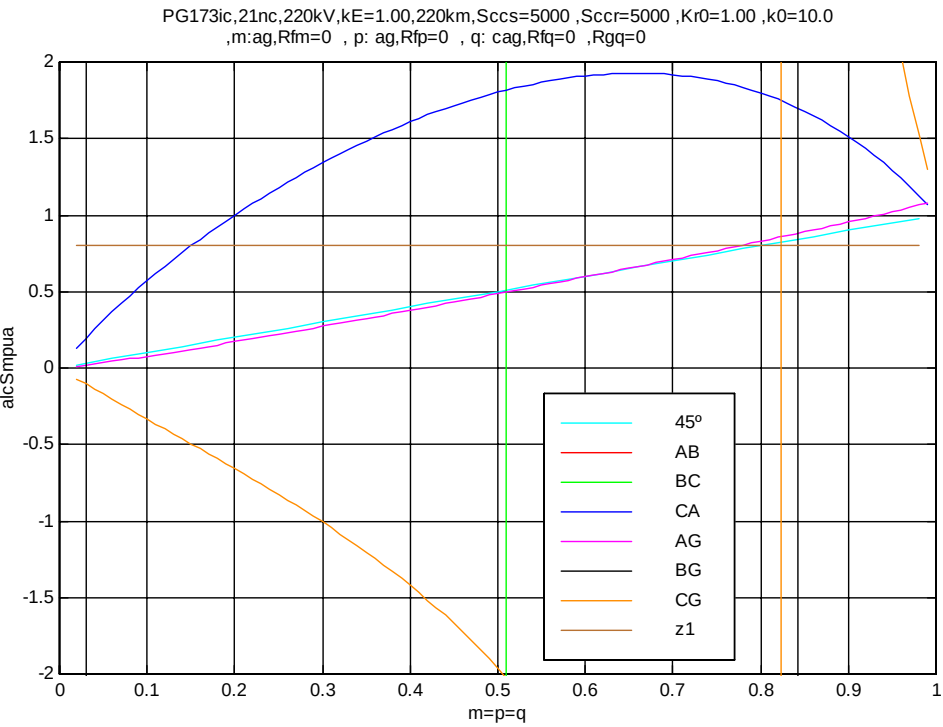
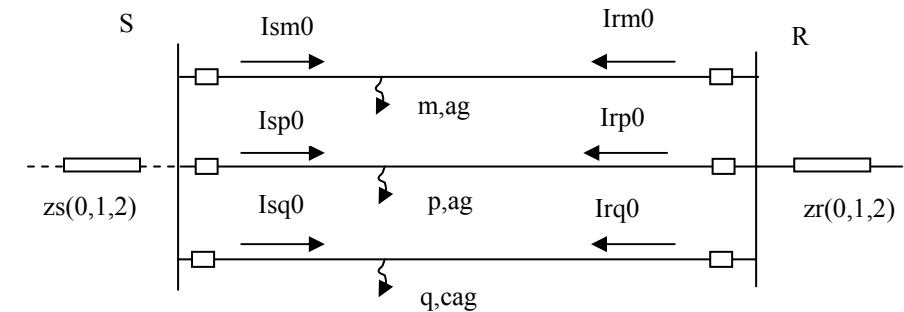
 $m = 0, \dots, 1 \rightarrow$  Medidas sin errorPaso a Zona 2:  $m = 0.80$ 

Rq(CA):

 $1-m = 0, \dots, 1 \rightarrow$  Medidas sin errorPaso a Zona 2:  $1-m = 0.80$

Programa: PG173ic  
Salida Especial Faltas Diversas, Falta ag-ag-cag: f01

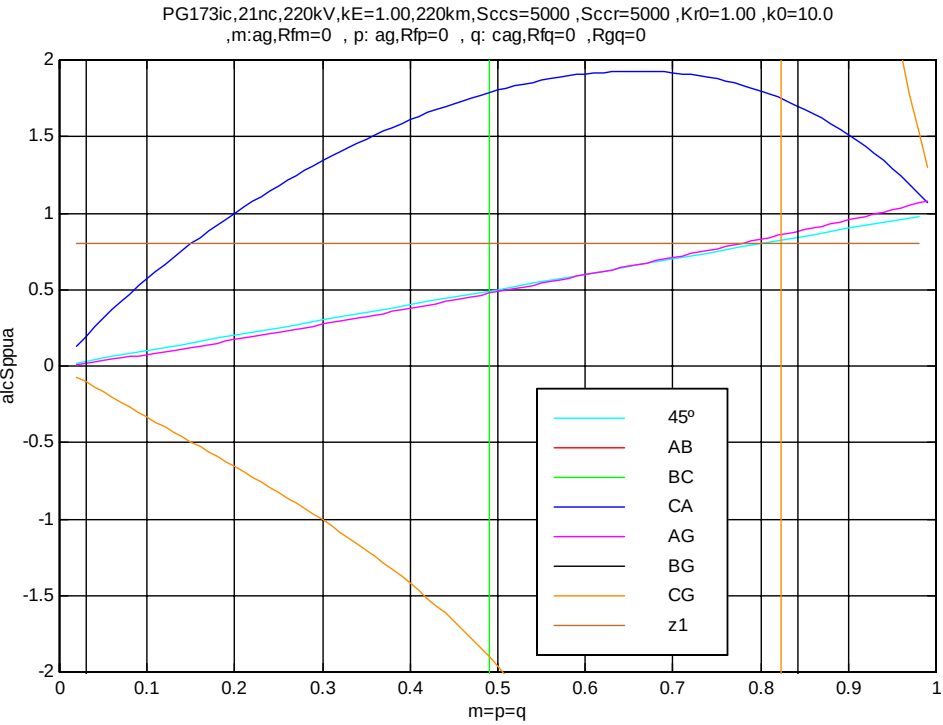
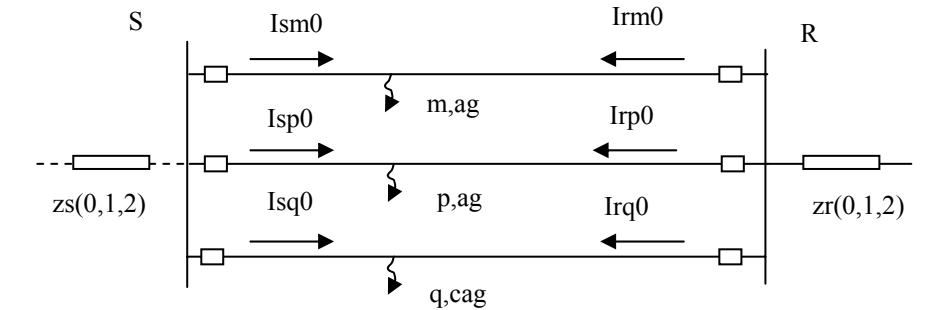
Esquema:



|           |    |    |      |      |    |    |
|-----------|----|----|------|------|----|----|
| Unidad    | AB | BC | CA   | AG   | BG | CG |
| Cobertura | -- | -- | 0.15 | 0.78 | -- | -- |

Programa: PG173ic  
Salida Especial Faltas Diversas, Falta ag-ag-cag: f02

Esquema:

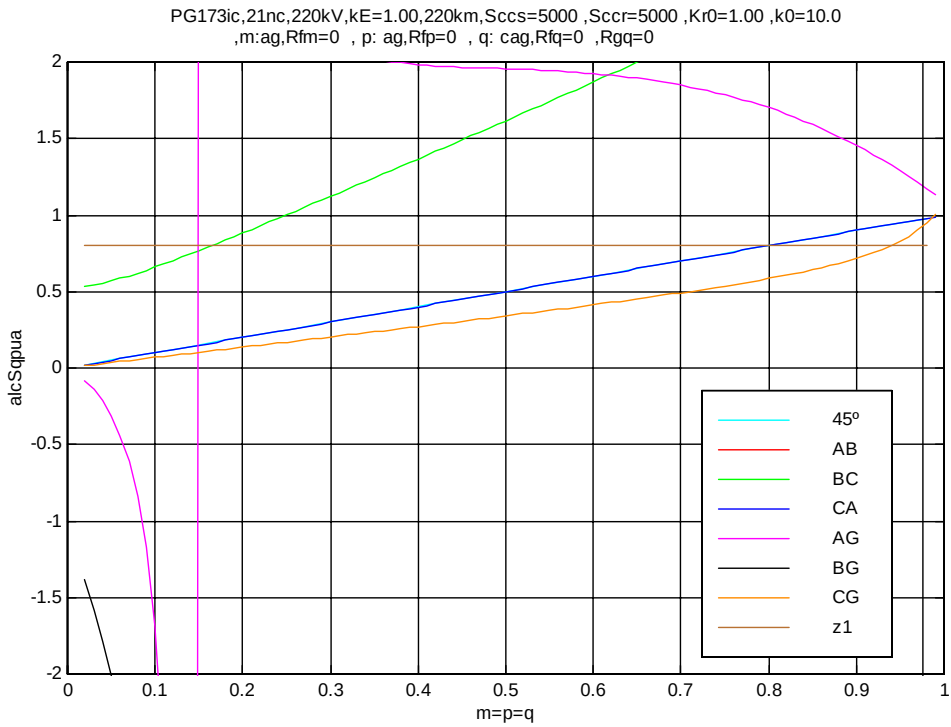
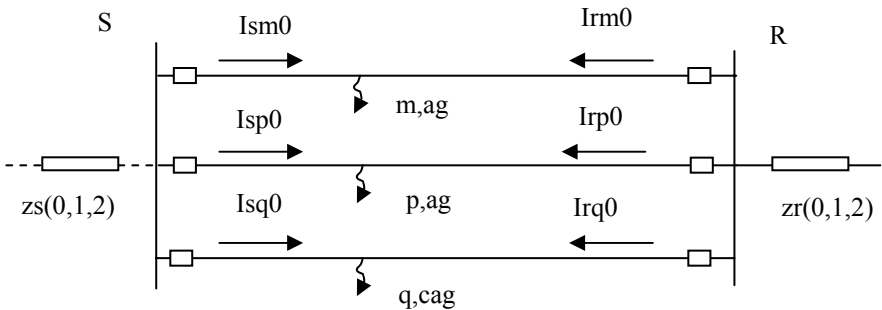


|           |    |    |      |      |    |    |
|-----------|----|----|------|------|----|----|
| Unidad    | AB | BC | CA   | AG   | BG | CG |
| Cobertura | -- | -- | 0.15 | 0.78 | -- | -- |



Programa: PG173ic  
Salida Especial Faltas Diversas, Falta ag-ag-cag: f03

Esquema:

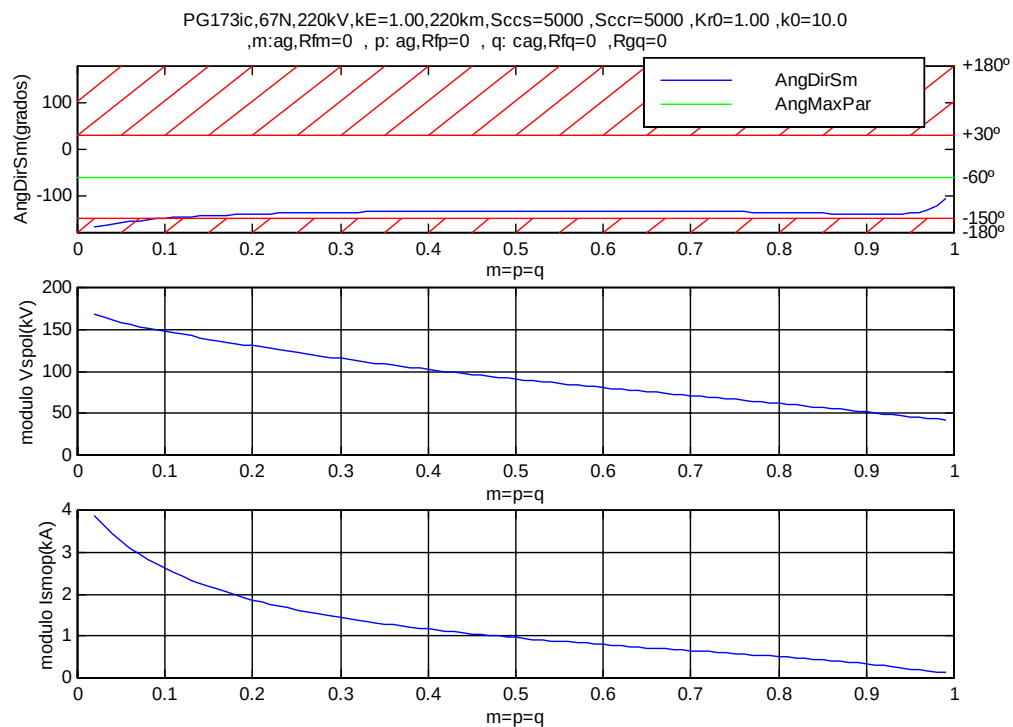
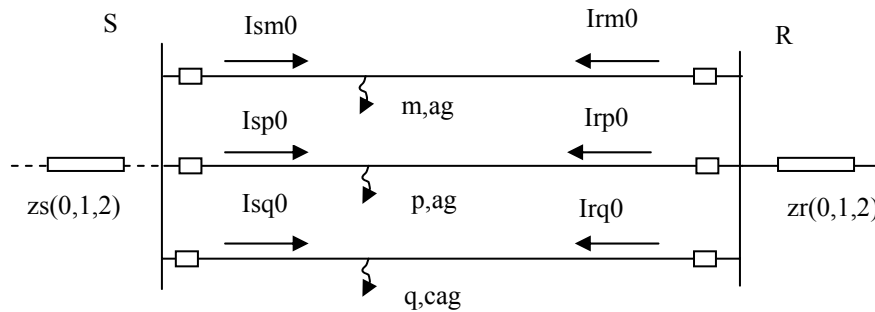


|           |    |      |      |    |    |      |
|-----------|----|------|------|----|----|------|
| Unidad    | AB | BC   | CA   | AG | BG | CG   |
| Cobertura | -- | 0.17 | 0.80 | -- | -- | 0.94 |

Programa: PG173ic

Salida Especial Faltas Diversas, Falta ag-ag-cag: n01

Esquema:



Direccionalidad: crítica

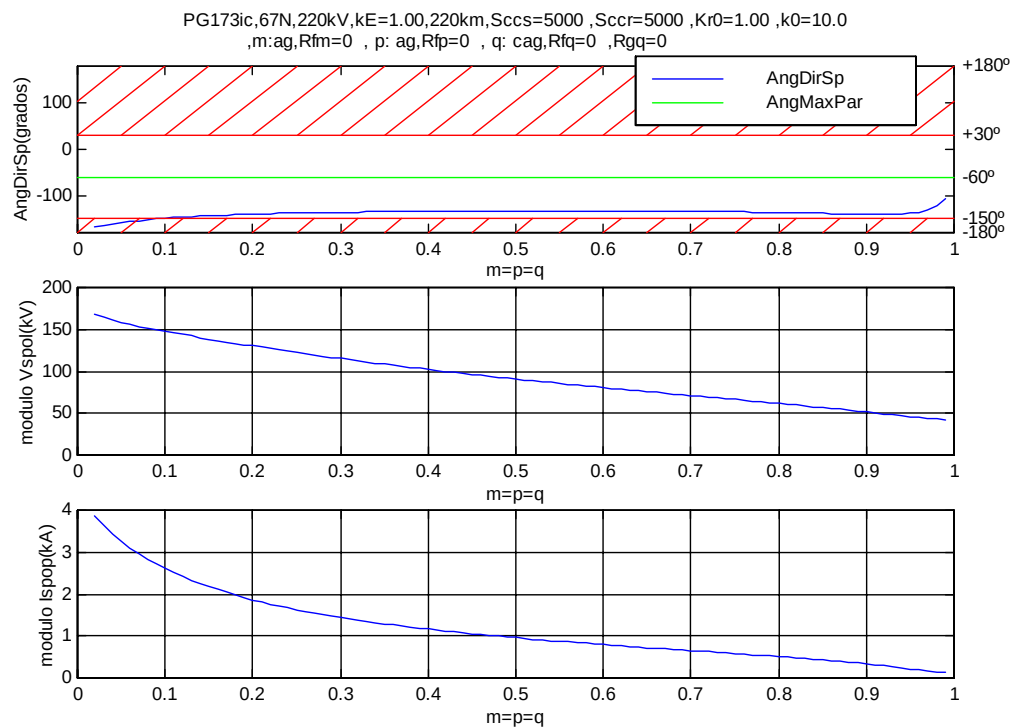
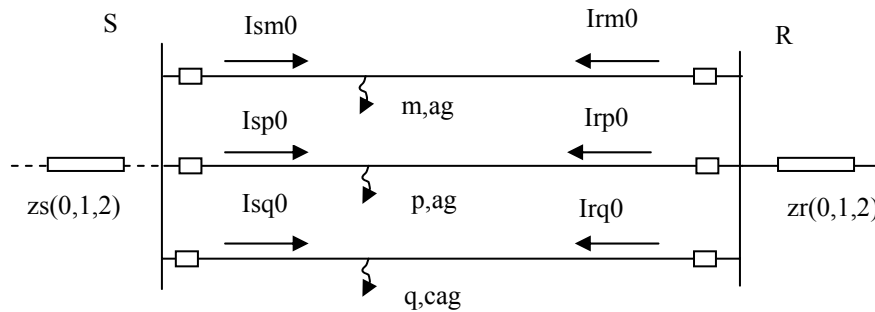
Sensibilidad de Tensión : decreciente (con m)

Sensibilidad de Corriente: decreciente (con m)

Programa: PG173ic

Salida Especial Faltas Diversas, Falta ag-ag-cag: n02

Esquema:



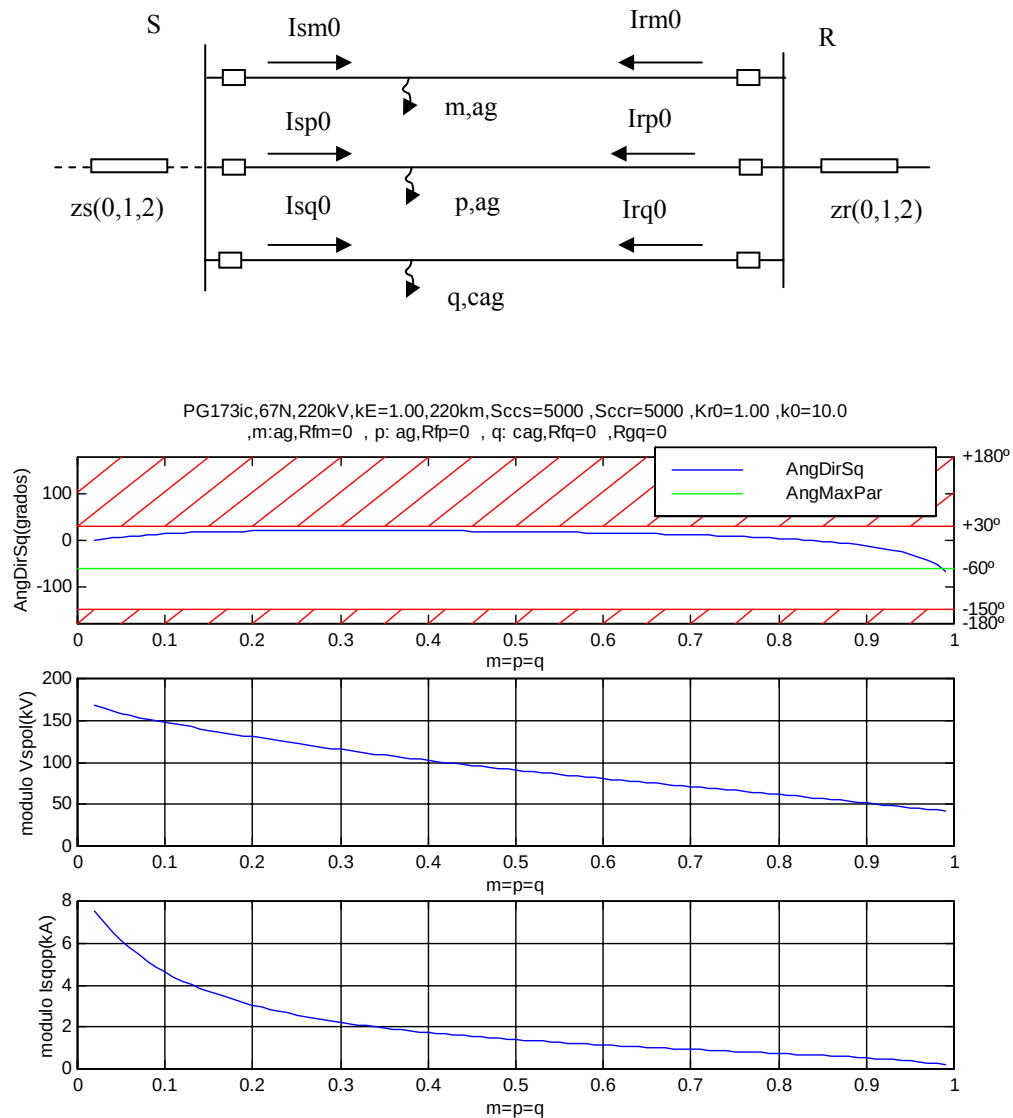
Direccionalidad: crítica

Sensibilidad de Tensión : decreciente (con  $p=m$ )Sensibilidad de Corriente: decreciente (con  $p=m$ )

Programa: PG173ic

Salida Especial Faltas Diversas, Falta ag-ag-cag: n03

Esquema:

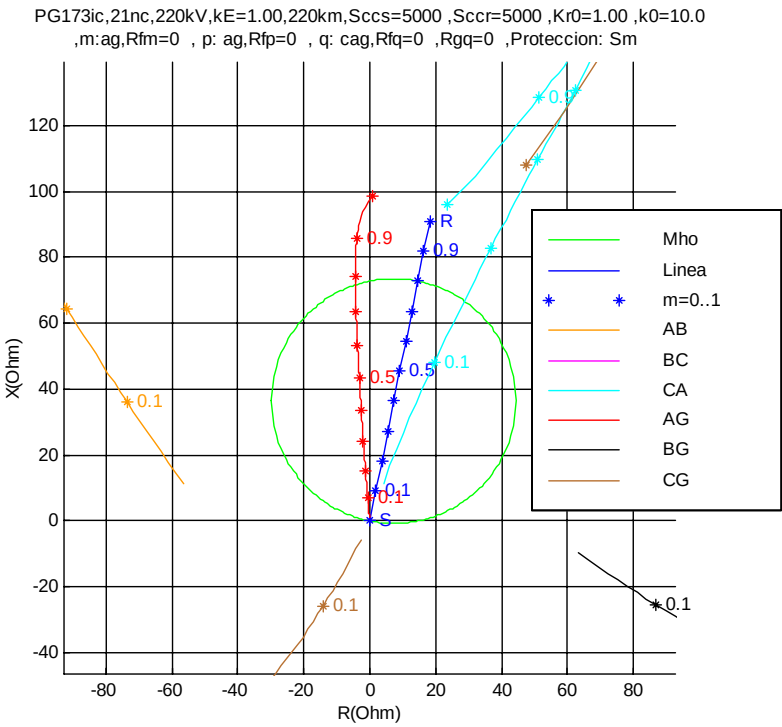
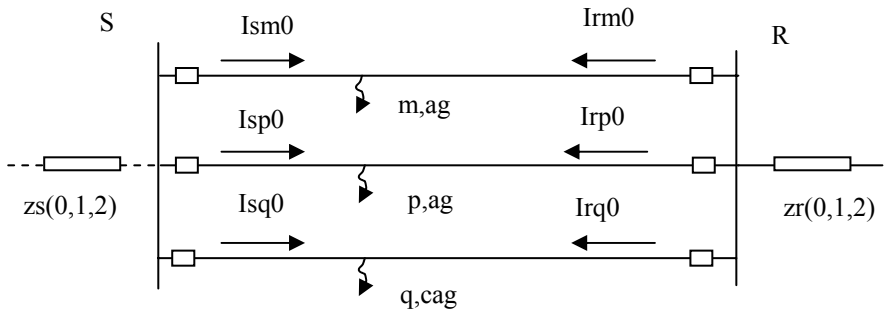


Direccionalidad: crítica ; al final sí

Sensibilidad de Tensión : decreciente (con  $q=p=m$ )Sensibilidad de Corriente: decreciente (con  $q=p=m$ )

Programa: PG173ic  
Salida Especial Faltas Diversas, Falta ag-ag-cag: z01

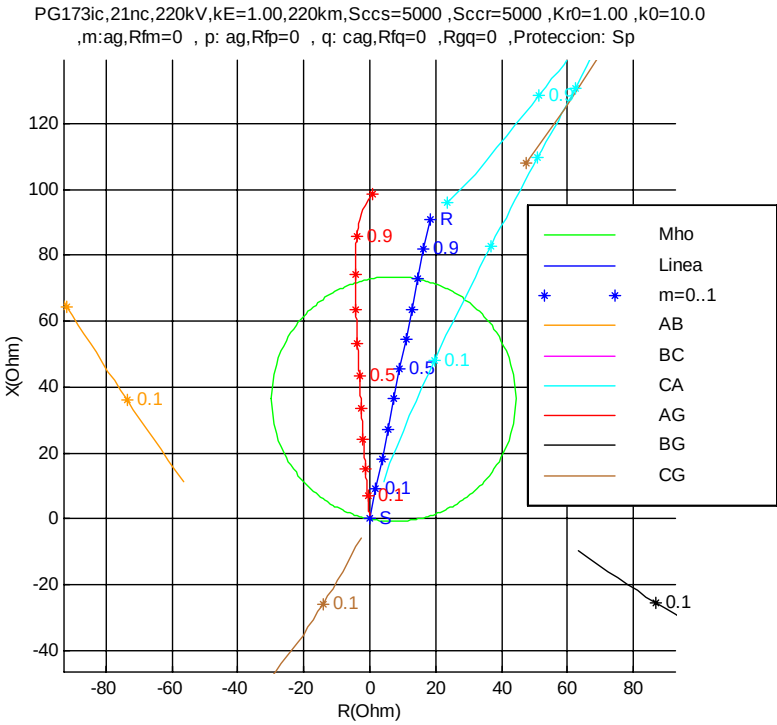
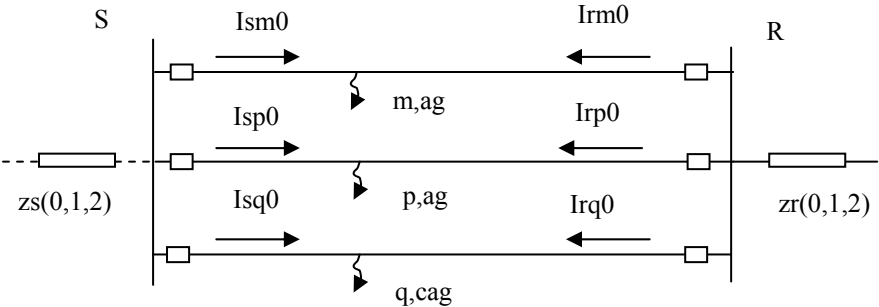
Esquema:



|           |    |    |      |      |    |    |
|-----------|----|----|------|------|----|----|
| Unidad    | AB | BC | CA   | AG   | BG | CG |
| Cobertura | -- | -- | 0.15 | 0.78 | -- | -- |

Programa: PG173ic  
Salida Especial Faltas Diversas, Falta ag-ag-cag: z02

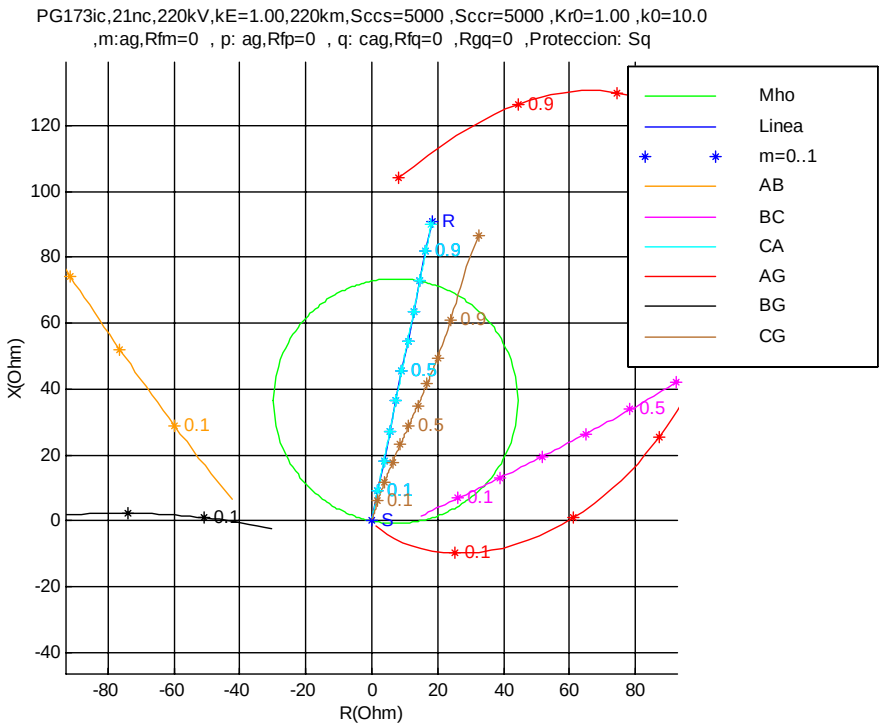
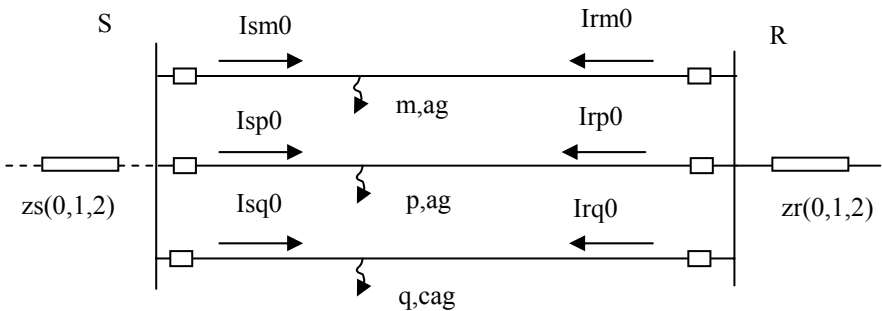
Esquema:



|           |    |    |      |      |    |    |
|-----------|----|----|------|------|----|----|
| Unidad    | AB | BC | CA   | AG   | BG | CG |
| Cobertura | -- | -- | 0.15 | 0.78 | -- | -- |

Programa: PG173ic  
Salida Especial Faltas Diversas, Falta ag-ag-cag: z03

Esquema:



|           |    |      |      |    |    |      |
|-----------|----|------|------|----|----|------|
| Unidad    | AB | BC   | CA   | AG | BG | CG   |
| Cobertura | -- | 0.17 | 0.80 | -- | -- | 0.94 |