

()

[] [, , ,]

[]

:[]

$$L = \frac{\text{TotalLoad} - \text{TotalGen.}}{\text{TotalGen.}} \quad ()$$

L % () L %

[]

[]

()

[]

$$LD = \frac{\frac{L}{L+1} - d \left(1 - \frac{f}{f_n} \right)}{1 - d \left(1 - \frac{f}{f_n} \right)} \quad ()$$

LD =

L =

f =

d =

f_n =

(F<)

" "

Slot

(F<)

()

()

Slot

()

Slot

Slot

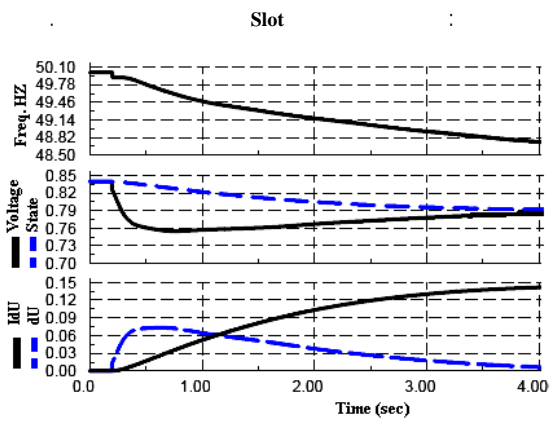
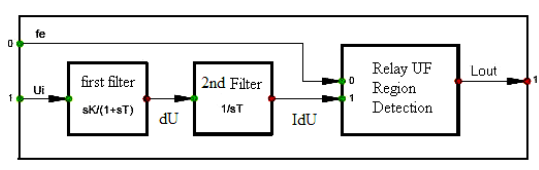
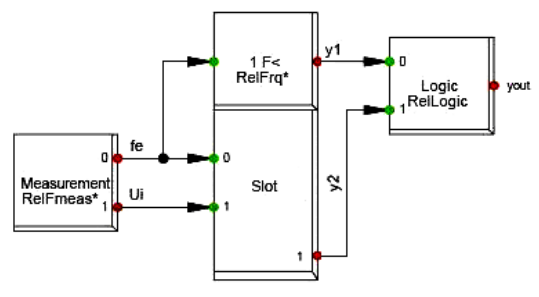
" / "

L_{out}

()

3s/(3s+1)

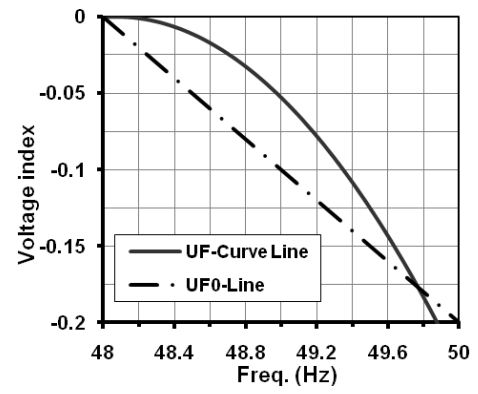
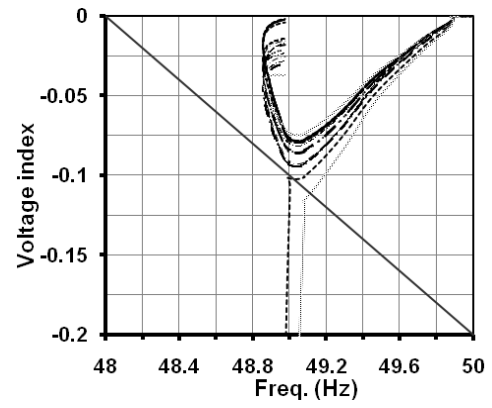
(dU)
 ()
 dU
 IdU
 ()
 ()
 ()
 Slot
 ()



Slot L_{out} " "
 dU (1/s)
 (IdU)
 ()

dU

dU



()

[]

L () = 0.5 p.u

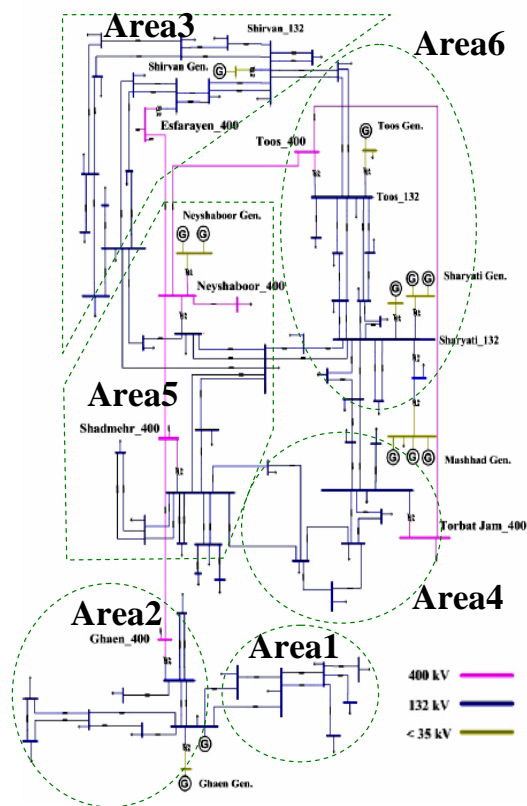
d () = 1.5

f () = 48 Hz

Total Load () = 2400 MW

LD () / ()

()



%

[]

)

(

()

$$idu = -0.1 \times f + 4.8$$

f idu

()

/	/	
/	/	
/	/	
/	/	

(F<)

()

$$idu = -0.06156 \times f^2 + 5.919 \times f - 142.278$$

f idu

()

(F<)

/

/

(F<)

()

()

/

,UF1

()

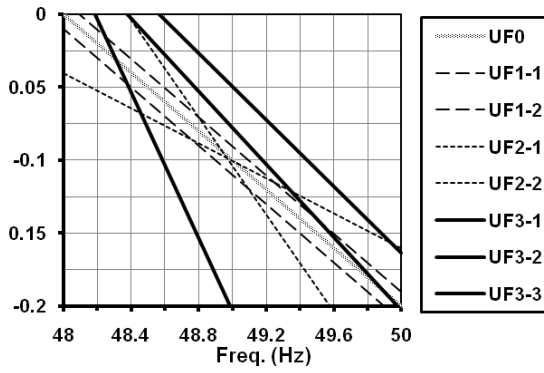
(UF0)

UF1
UF3

UF2

UF2

()



LA

LB

LC

LB

LB

LC

	(MW)						
(MW)							
/	/	/	/	/	/	/	LA
/	/	/	/	/	/	/	LB
/	/	/	/	/	/	/	LC
/	/	/	/	/	/	/	
/	/	/	/	/	/	/	
/	/	/	/	/	/	/	

()

()

()

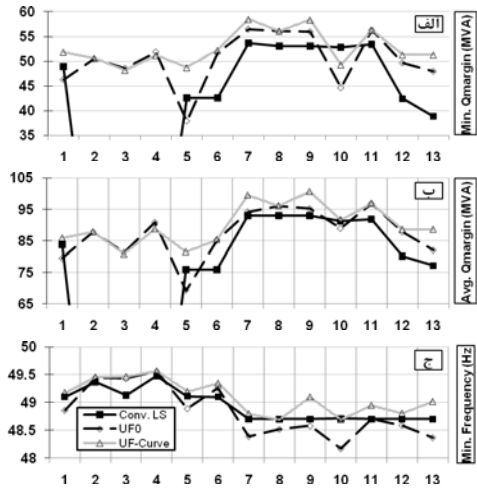
()

()

() ()

() ()

()



()

() () ()

(Conv-LS)

(UF-Curve)

(UF0)

()

()

(MVAr)		(Hz)	(MW)		
/	/	/	/	/	
/	/	/	/	/	
/	/	/	/	/	
/	/	/	/	/	
/	/	/	/	/	
/	/	/	/	/	
/	/	/	/	/	
/	/	/	/	/	
/	/	/	/	/	
/	/	/	/	/	
/	/	/	/	/	
/	/	/	/	/	
/	/	/	/	/	

()

()

()

(UF0)

()

/ ,UF0

(MW)	(Hz)	(%)	(MVAr)				
/	/	/	/	/	ToosG12		UF0
/	/	/	/	/	ToosG12(NT903)		
/	/	/	/	/	ToosG12-MT904		
/	/	/	/	/	NeyshaborG		
	/	/	/	/	ToosG12		UF1-LA
	/	/	/	/	ToosG12(NT903)		
	/	/	/	/	ToosG12-MT904		
	/	/	/	/	NeyshaborG		UF1-LB
	/	/	/	/	ToosG12		
	/	/	/	/	ToosG12(NT903)		
	/	/	/	/	ToosG12-MT904		UF2-LB
	/	/	/	/	NeyshaborG		
	/	/	/	/	ToosG12		
	/	/	/	/	ToosG12(NT903)		UF3-LC
	/	/	/	/	ToosG12-MT904		
	/	/	/	/	NeyshaborG		

LA
LB

UF1-LA

UF1-LB

,LB

UF1-LA

UF2

/

LB

()

UF2

,UF1-LA

UF2

UF1

LB

UF1-LA

UF-3

,UF2-LB

,UF0

UF0

UF2-LB

()

UF3

LC

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- 1 - Conventional Under Frequency Load Shedding
 - 2 - Special Protection Scheme (SPS)
 - 3 - Global & Wide Area Protection Schemes
 - 4 - Global
 - 5 - Relay UF Region Detection
 - 6 - Pickup Time
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