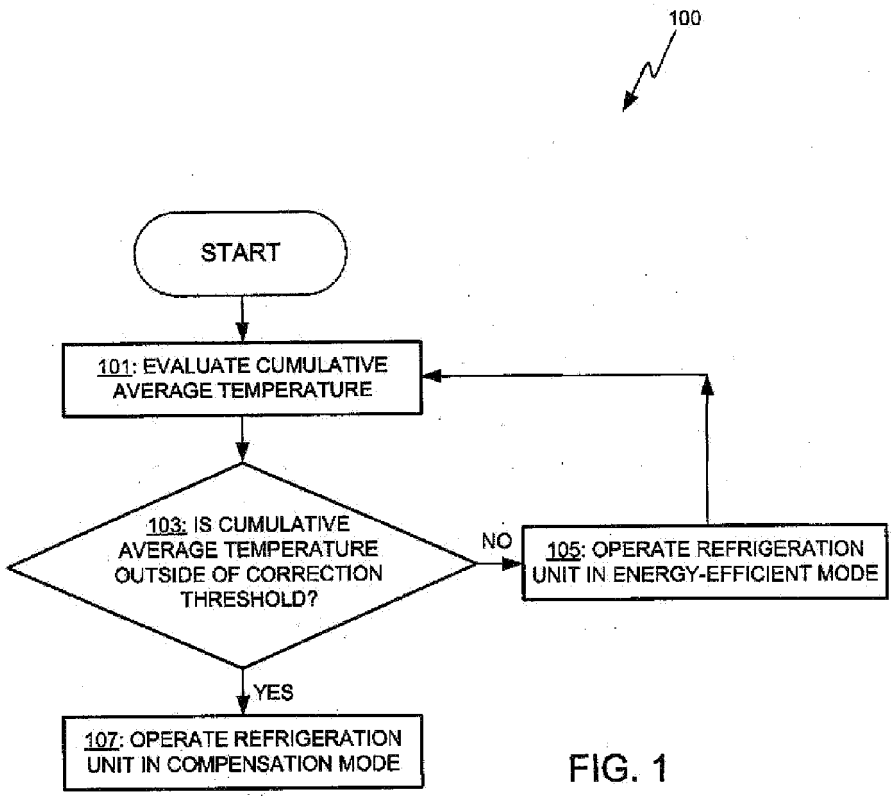

100
START
101: EVALUATE CUMULATIVE AVERAGE TEMPERATURE
103: IS CUMULATIVE AVERAGE TEMPERATURE OUTSIDE OF CORRECTION THRESHOLD?
NO
105: OPERATE REFRIGERATION UNIT IN ENERGY-EFFICIENT MODE
YES
107: OPERATE REFRIGERATION UNIT IN COMPENSATION MODE

FIG. 1

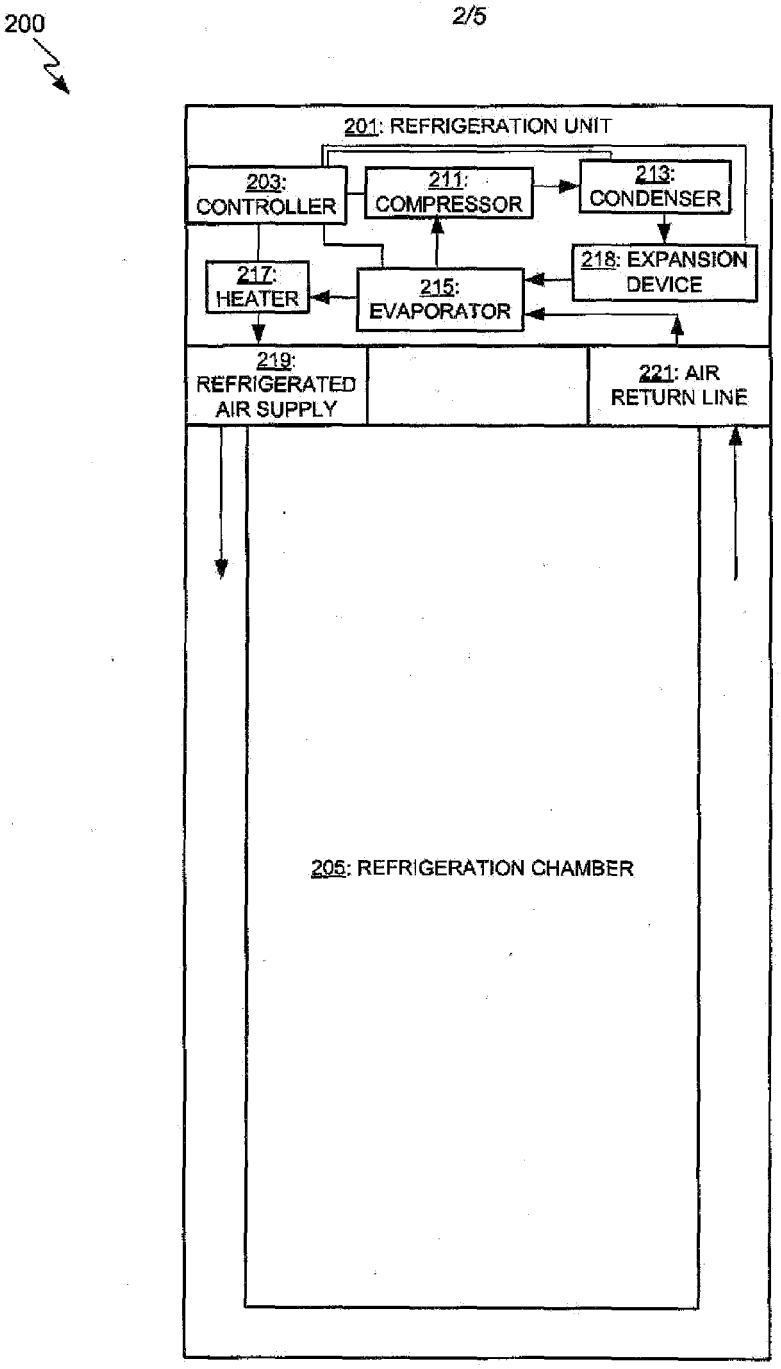

200
201: REFRIGERATION UNIT
203: CONTROLLER
211: COMPRESSOR
213: CONDENSER
218: EXPANSION DEVICE
217: HEATER
215: EVAPORATOR
219: REFRIGERATED AIR SUPPLY
221: AIR RETURN LINE
205: REFRIGERATION CHAMBER

FIG. 2

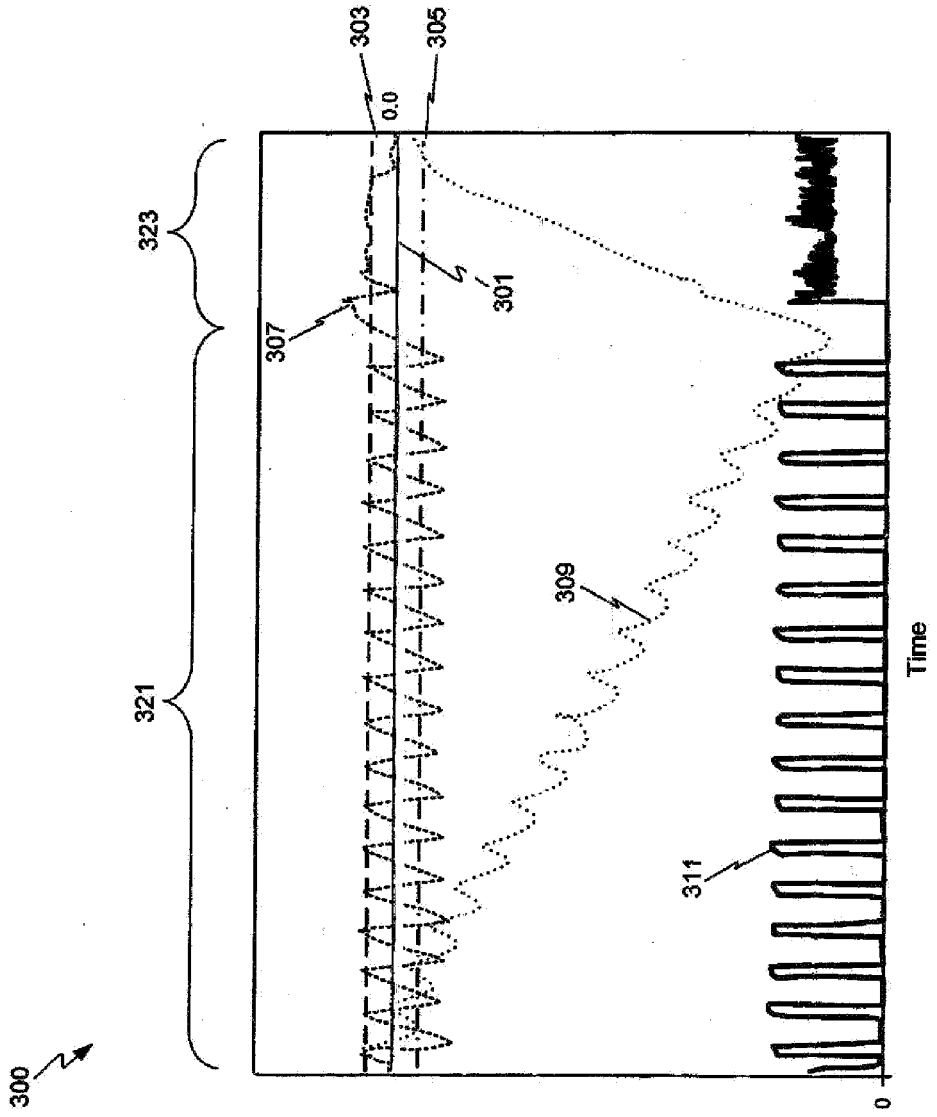


FIG. 3

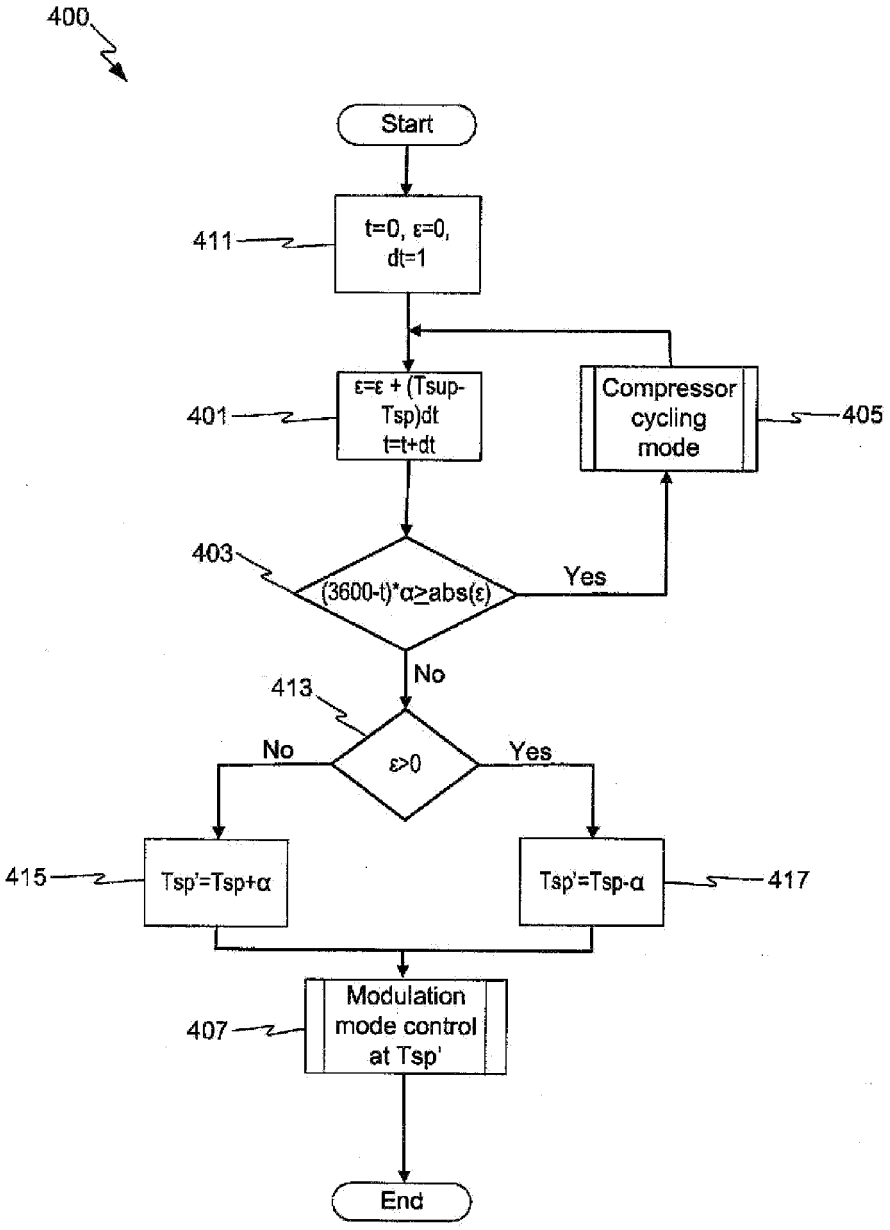

400
Start
411
t=0, ε=0, dt=1
401
ε=ε + (Tsup-Tsp)dt
t=t+dt
Compressor cycling mode
405
403
(3600-t)*α≥abs(ε)
Yes
No
413
No
ε>0
Yes
415
Tsp'=Tsp+α
Tsp'=Tsp-α
417
Modulation mode control at Tsp'
407
End

FIG. 4

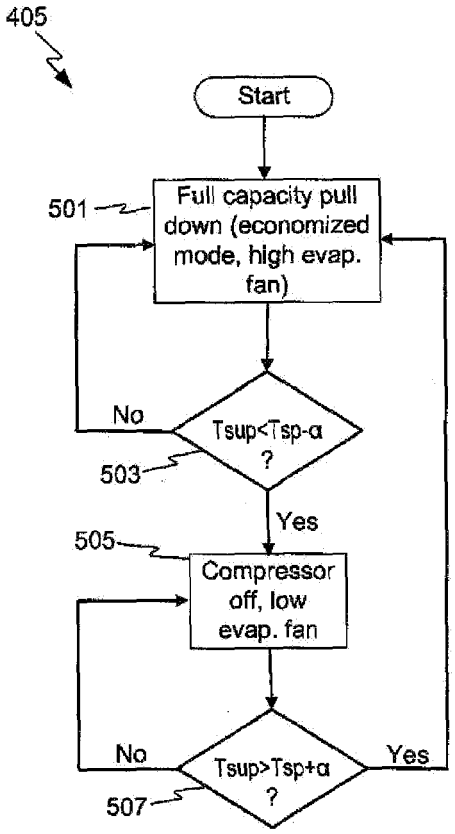

405
Start
501
Full capacity pull down (economized mode, high evap. fan)
No
Tsup<Tsp-α ?
503
Yes
505
Compressor off, low evap. fan
No
Tsup>Tsp+α ?
Yes
507

FIG. 5

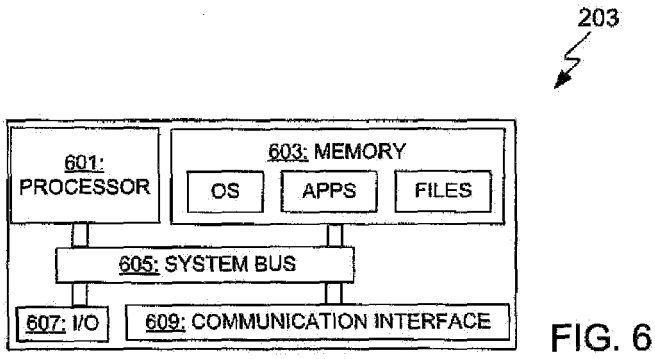

203
601: PROCESSOR
603: MEMORY
OS
APPS
FILES
605: SYSTEM BUS
607: I/O
609: COMMUNICATION INTERFACE

FIG. 6