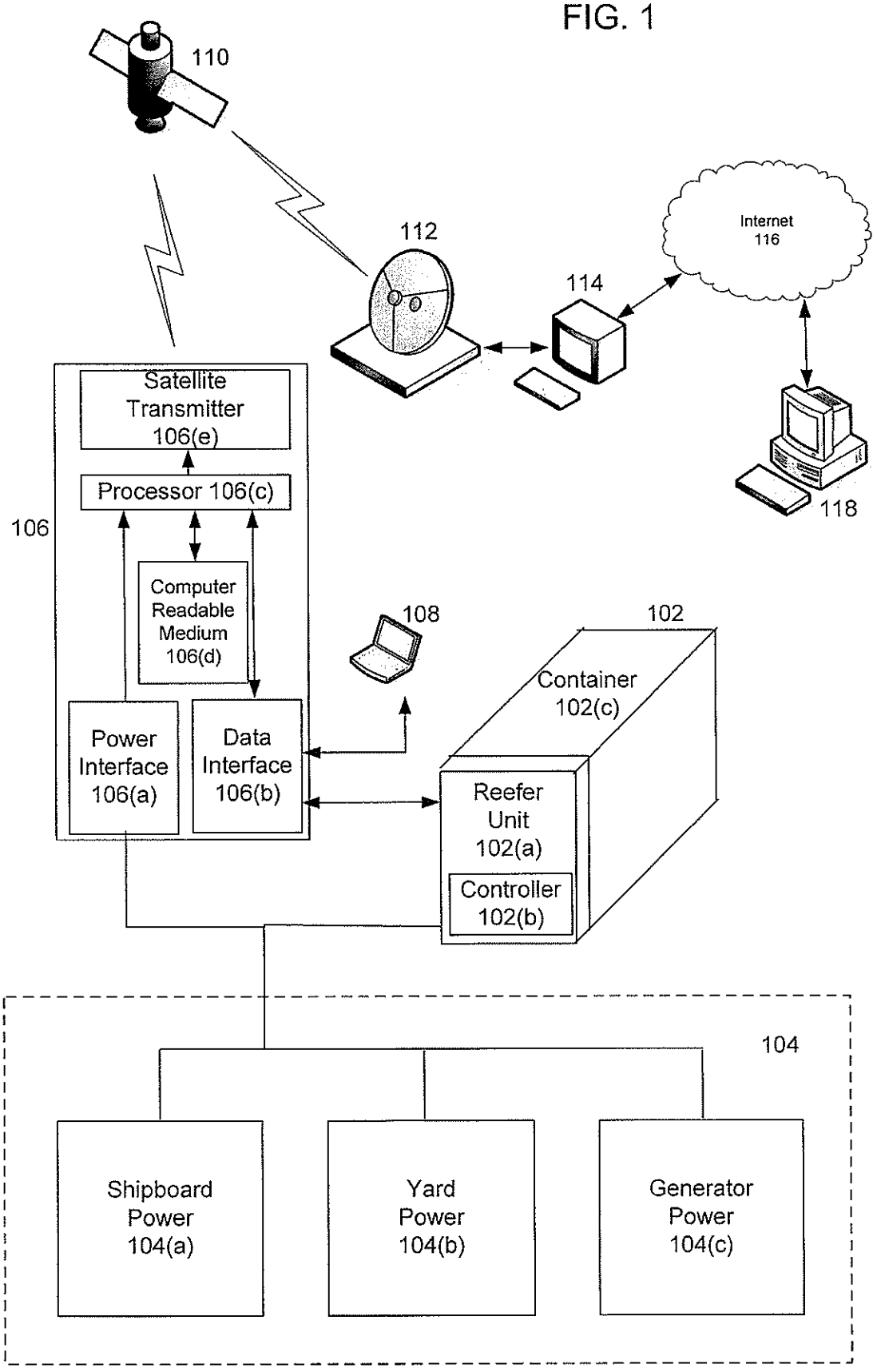
FIG. 1


110
112
Internet
116
114
118
Satellite
Transmitter
106(e)
Processor 106(c)
106
Computer
Readable
Medium
106(d)
108
102
Container
102(c)
Power
Interface
106(a)
Data
Interface
106(b)
Reefer
Unit
102(a)
Controller
102(b)
104
Shipboard
Power
104(a)
Yard
Power
104(b)
Generator
Power
104(c)

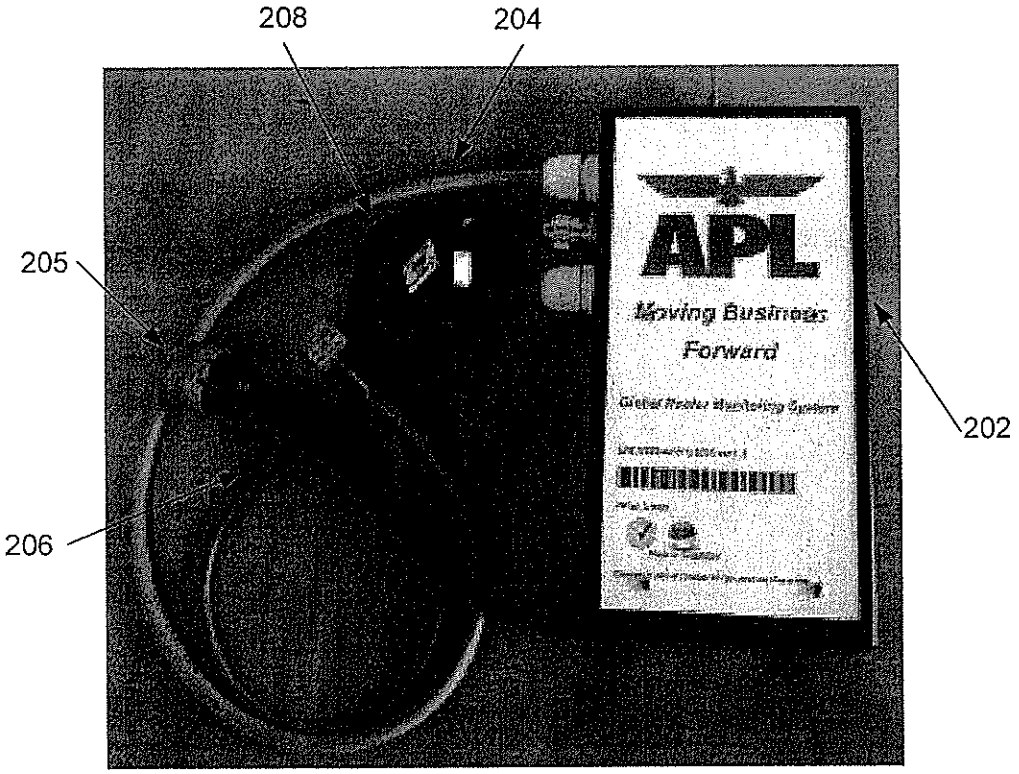


FIG. 2

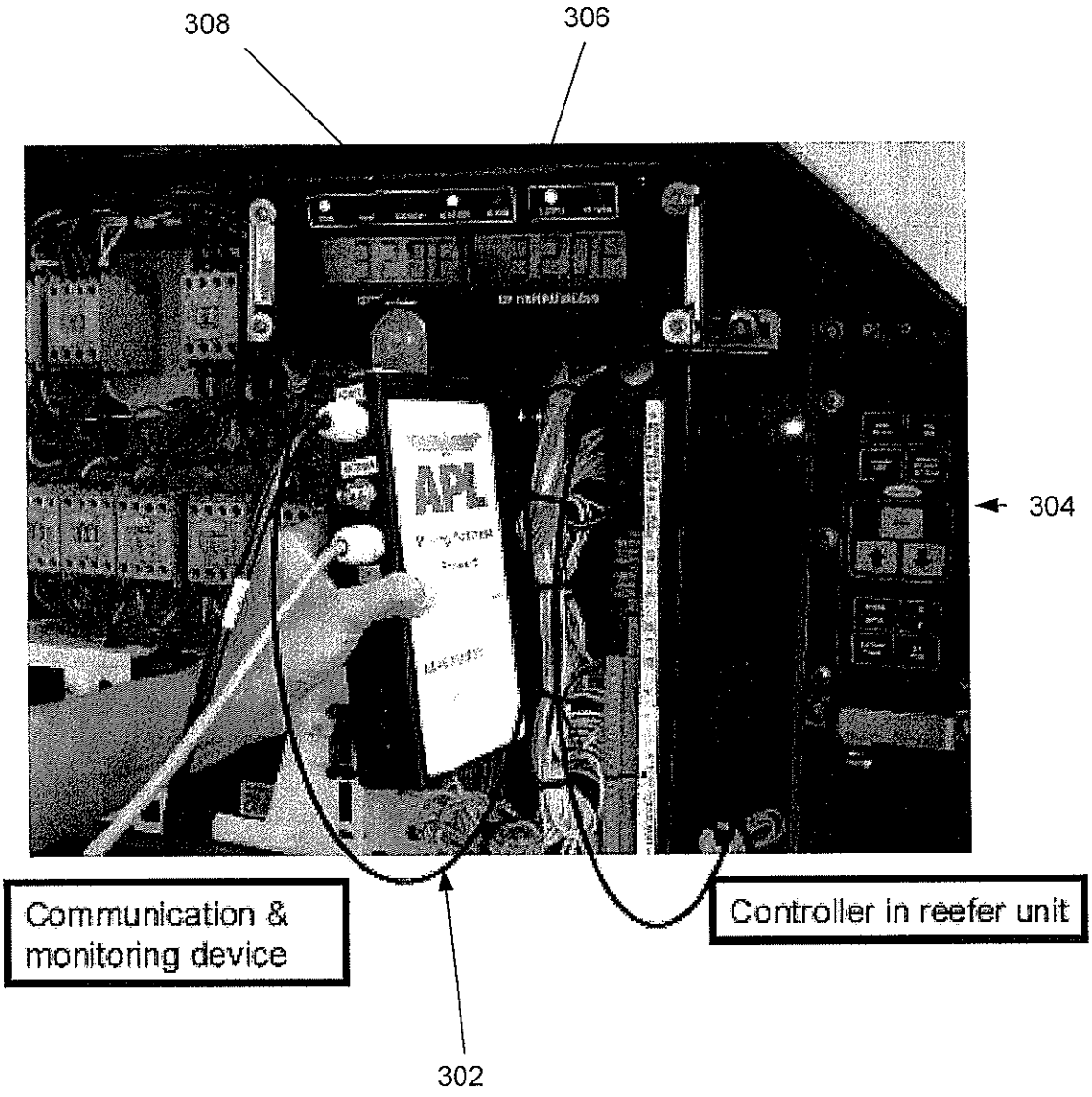

308
306
304
APL
Communication & monitoring device
Controller in reefer unit
302

FIG. 3

402 404 406 Master View 408 410 412 414

Shipper ID	Container ID	Time	Temp. (F)	Set (F)	Humidity(%)	Set (%)
415	888888	23:00:00	32.0	32.0	45.4	45.0
007	111111	23:00:00	45.0	45.0	30.0	30.0
007	222222	23:00:00	0.0	0.0	30.5	30.0
630	999999	23:30:00	50.3	50.0	25.4	25.0
415	888888	23:30:00	32.4	32.0	44.0	45.0
415	888888	00:00:00	31.8	32.0	46.0	45.0
415	888888	00:30:00	31.4	32.0	49.0	45.0
007	111111	01:00:00	45.3	45.0	30.2	30.0
007	222222	01:00:00	-0.3	0.0	30.6	30.0
415	888888	01:00:00	32.4	32.0	45.0	45.0
415	888888	01:07:00	65	32.0	85.0	45.0
...	....	....	....		....	
630	999999	03:30:00	50.0	50.0	25.2	25.0

FIG. 4(a)

416 Shipper ID

418 422 420

Shipper ID	Container ID	Time	Temp. (F)	Set (F)	Humidity(%)	Set (%)
007	111111	23:00:00	45.0	45.0	30.0	30.0
007	222222	23:00:00	0.0	0.0	30.5	30.0
007	111111	01:00:00	45.3	45.0	30.2	30.0
007	222222	01:00:00	-0.3	0.0	30.6	30.0

FIG. 4(b)

424 426

Container ID

Shipper ID	Container ID	Time	Temp. (F)	Set (F)	Humidity(%)	Set (%)
007	111111	23:00:00	45.0	45.0	30.0	30.0
007	111111	01:00:00	45.3	45.0	30.2	30.0

FIG. 4(c)

428 Shipper ID / Container ID

430 432

Shipper ID	Container ID	Time	Temp. (F)	Set (F)	Humidity(%)	Set (%)
415	888888	23:00:00	32.0	32.0	45.4	45.0
415	888888	23:30:00	32.4	32.0	44.0	45.0
415	888888	00:00:00	31.8	32.0	46.0	45.0
415	888888	00:30:00	31.4	32.0	49.0	45.0
415	888888	01:00:00	32.4	32.0	45.0	45.0
415	888888	01:07:00	65	32.0	85.0	45.0

FIG. 4(d)

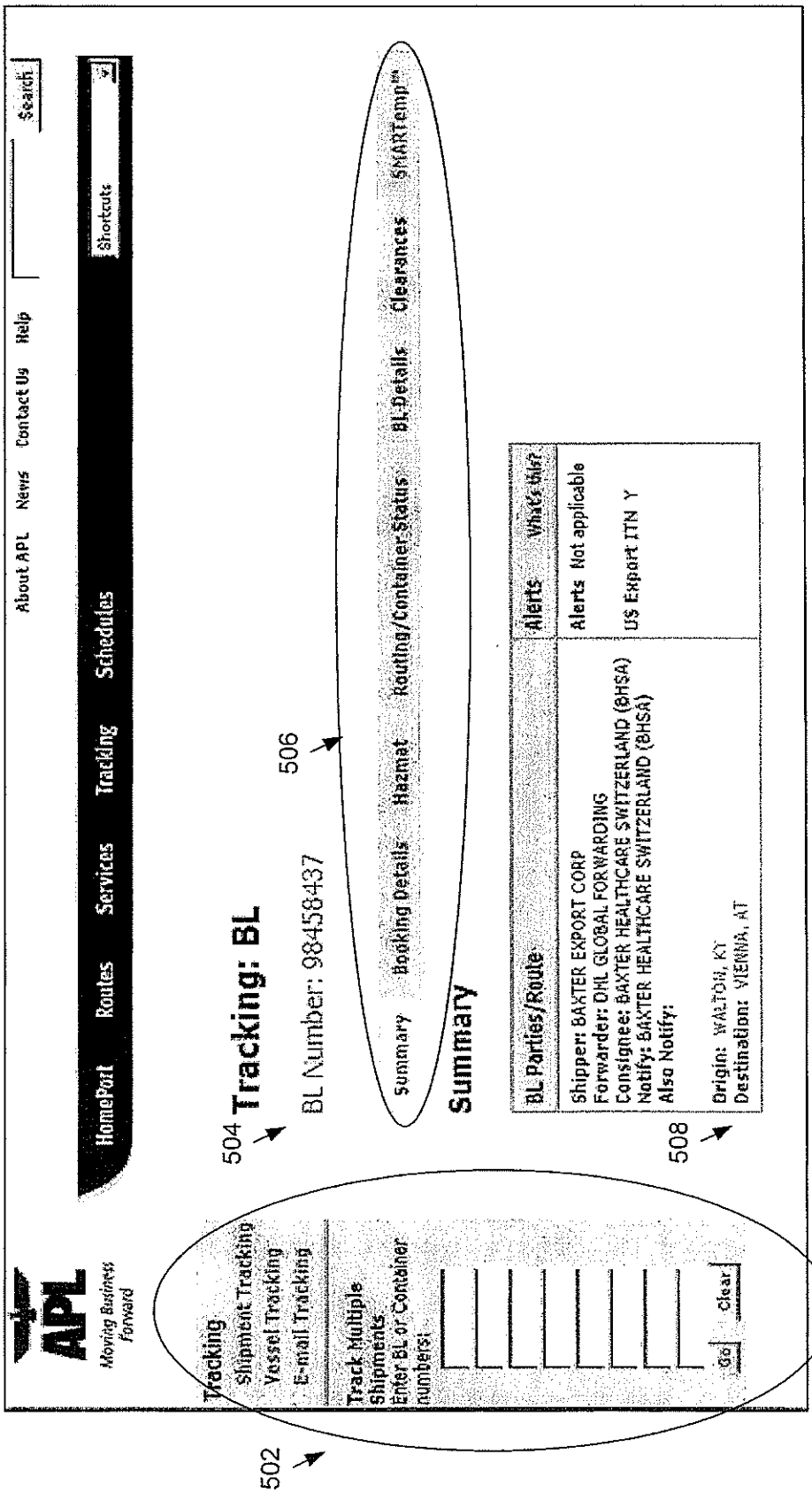

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E-mail Tracking
Track Multiple Shipments
Enter BL or Container number(s):
Go
Clear
502
504
Tracking: BL
BL Number: 98458437
506
Summary
Booking Details
Hazmat
Routing/Container Status
BL Details
Clearances
SMARTemp™
Summary
BL Parties/Route
Alerts
What's this?
Shipper: BAXTER EXPORT CORP
Forwarder: DHL GLOBAL FORWARDING
Consignee: BAXTER HEALTHCARE SWITZERLAND (BHSA)
Notify: BAXTER HEALTHCARE SWITZERLAND (BHSA)
Also Notify:
Origin: WALTON, KY
Destination: VIENNA, AT
Alerts Not applicable
US Export ITN Y
508

FIG. 5

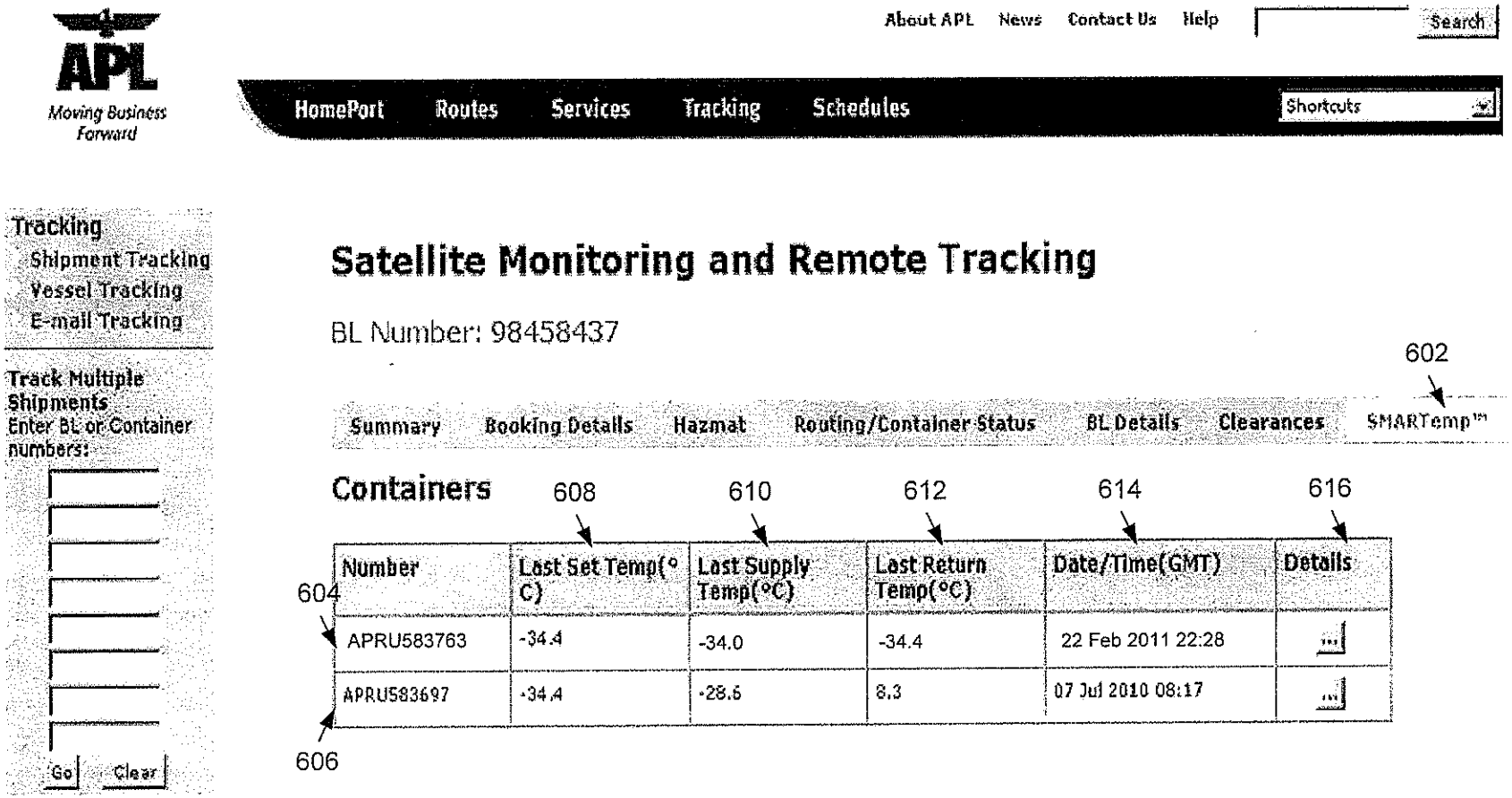

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Vessel Tracking
E-mail Tracking
Track Multiple Shipments
Enter BL or Container numbers:
Go
Clear
Satellite Monitoring and Remote Tracking
BL Number: 98458437
602
Summary
Booking Details
Hazmat
Routing/Container Status
BL Details
Clearances
SMARTemp™
Containers
604
606
608
610
612
614
616
Number
Last Set Temp(°C)
Last Supply Temp(°C)
Last Return Temp(°C)
Date/Time(GMT)
Details
APRU583763
-34.4
-34.0
-34.4
22 Feb 2011 22:28
APRU583697
-34.4
-28.6
8.3
07 Jul 2010 08:17

FIG. 6

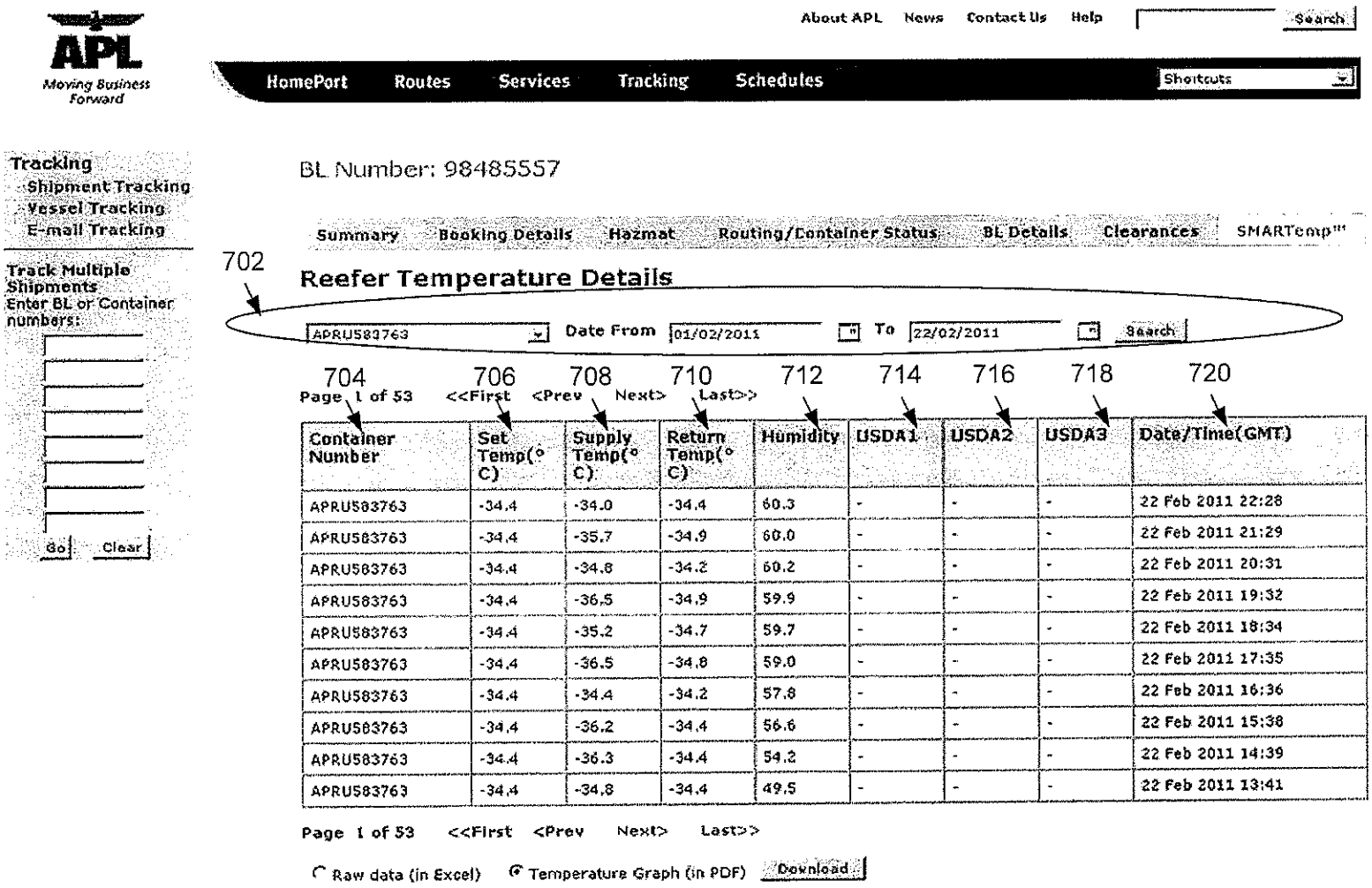

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Shipment Tracking
Vessel Tracking
E-mail Tracking
Track Multiple Shipments
Enter BL or Container numbers:
Go
Clear
BL Number: 98485557
Summary
Booking Details
Hazmat
Routing/Container Status
BL Details
Clearances
SMARTemp™
702
Reefer Temperature Details
APRU583763
Date From
01/02/2011
To
22/02/2011
Search
704
706
708
710
712
714
716
718
720
Page 1 of 53
<<First
<Prev
Next>
Last>>
Container Number
Set Temp(° C)
Supply Temp(° C)
Return Temp(° C)
Humidity
USDA1
USDA2
USDA3
Date/Time(GMT)
APRU583763 -34.4 -34.0 -34.4 60.3 - - - 22 Feb 2011 22:28
APRU583763 -34.4 -35.7 -34.9 60.0 - - - 22 Feb 2011 21:29
APRU583763 -34.4 -34.8 -34.2 60.2 - - - 22 Feb 2011 20:31
APRU583763 -34.4 -36.5 -34.9 59.9 - - - 22 Feb 2011 19:32
APRU583763 -34.4 -35.2 -34.7 59.7 - - - 22 Feb 2011 18:34
APRU583763 -34.4 -36.5 -34.8 59.0 - - - 22 Feb 2011 17:35
APRU583763 -34.4 -34.4 -34.2 57.8 - - - 22 Feb 2011 16:36
APRU583763 -34.4 -36.2 -34.4 56.6 - - - 22 Feb 2011 15:38
APRU583763 -34.4 -36.3 -34.4 54.2 - - - 22 Feb 2011 14:39
APRU583763 -34.4 -34.8 -34.4 49.5 - - - 22 Feb 2011 13:41
Page 1 of 53
<<First
<Prev
Next>
Last>>
Raw data (in Excel)
Temperature Graph (in PDF)
Download

FIG. 7

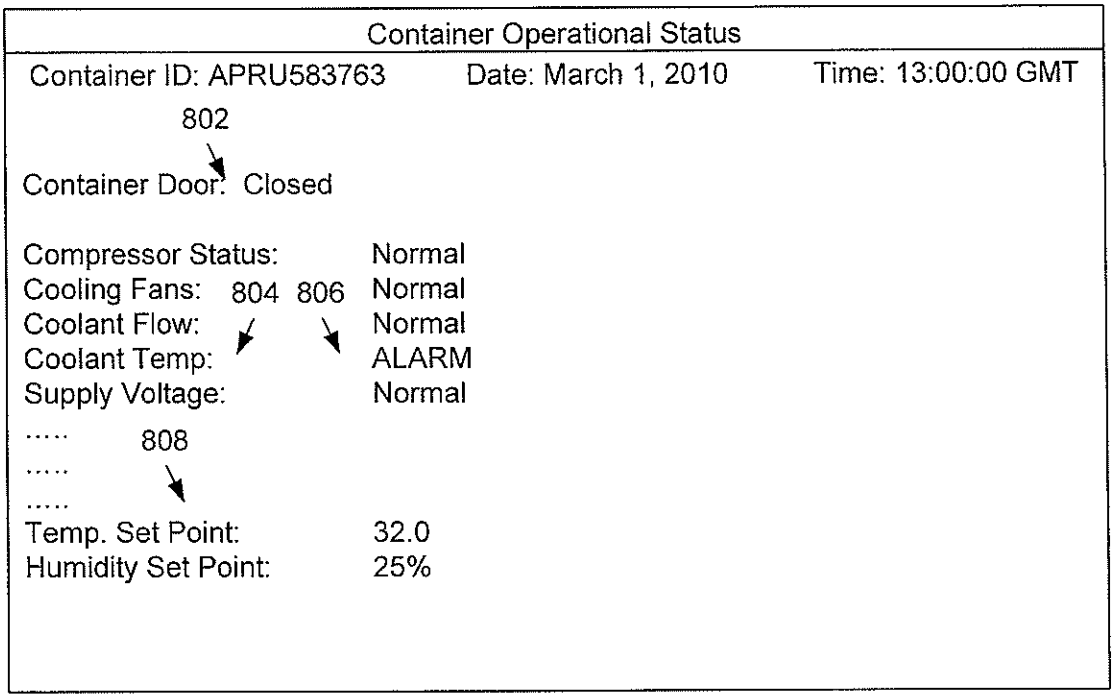

Container Operational Status
Container ID: APRU583763
Date: March 1, 2010
Time: 13:00:00 GMT
802
Container Door: Closed
Compressor Status: Normal
Cooling Fans: Normal
Coolant Flow: Normal
Coolant Temp: ALARM
Supply Voltage: Normal
804
806
808
Temp. Set Point: 32.0
Humidity Set Point: 25%

FIG. 8

FIG. 9

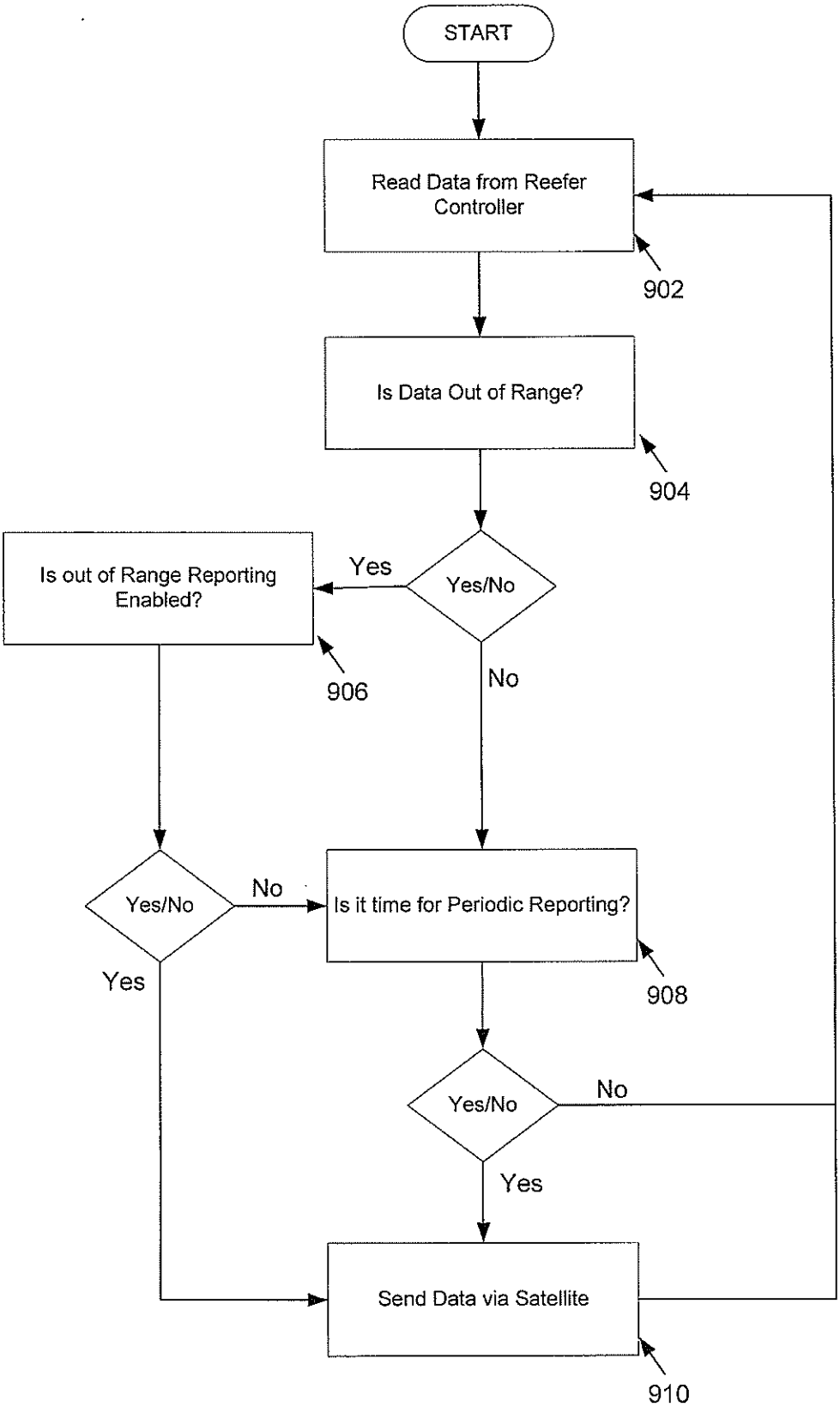
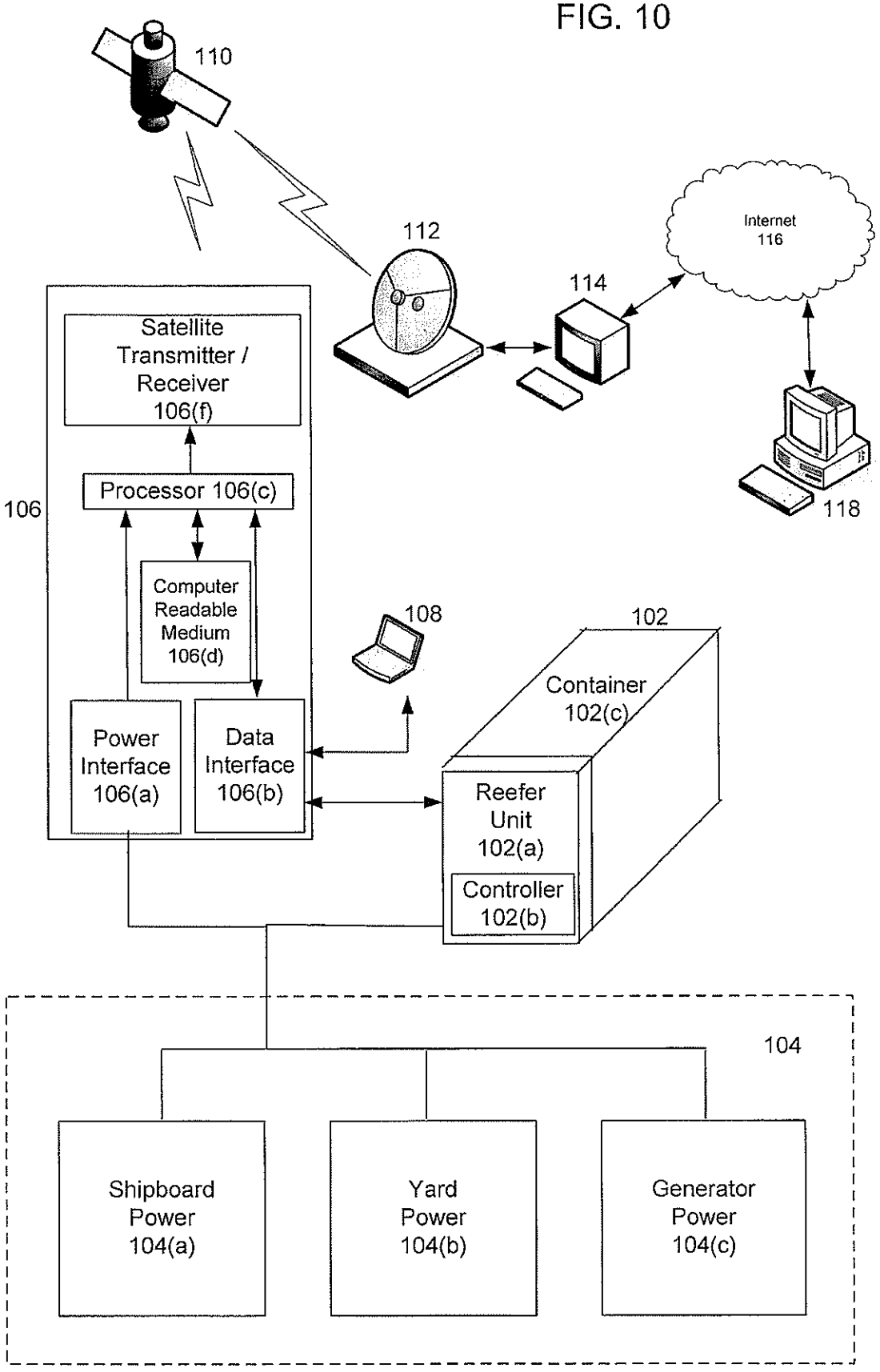

START
Read Data from Reefer Controller
902
Is Data Out of Range?
904
Yes/No
Yes
Is out of Range Reporting Enabled?
906
No
Yes/No
No
Is it time for Periodic Reporting?
908
Yes
Yes/No
No
Yes
Send Data via Satellite
910

FIG. 10


110
112
Internet
116
114
Satellite
Transmitter /
Receiver
106(f)
106
Processor 106(c)
118
Computer
Readable
Medium
106(d)
108
102
Container
102(c)
Power
Interface
106(a)
Data
Interface
106(b)
Reefer
Unit
102(a)
Controller
102(b)
104
Shipboard
Power
104(a)
Yard
Power
104(b)
Generator
Power
104(c)

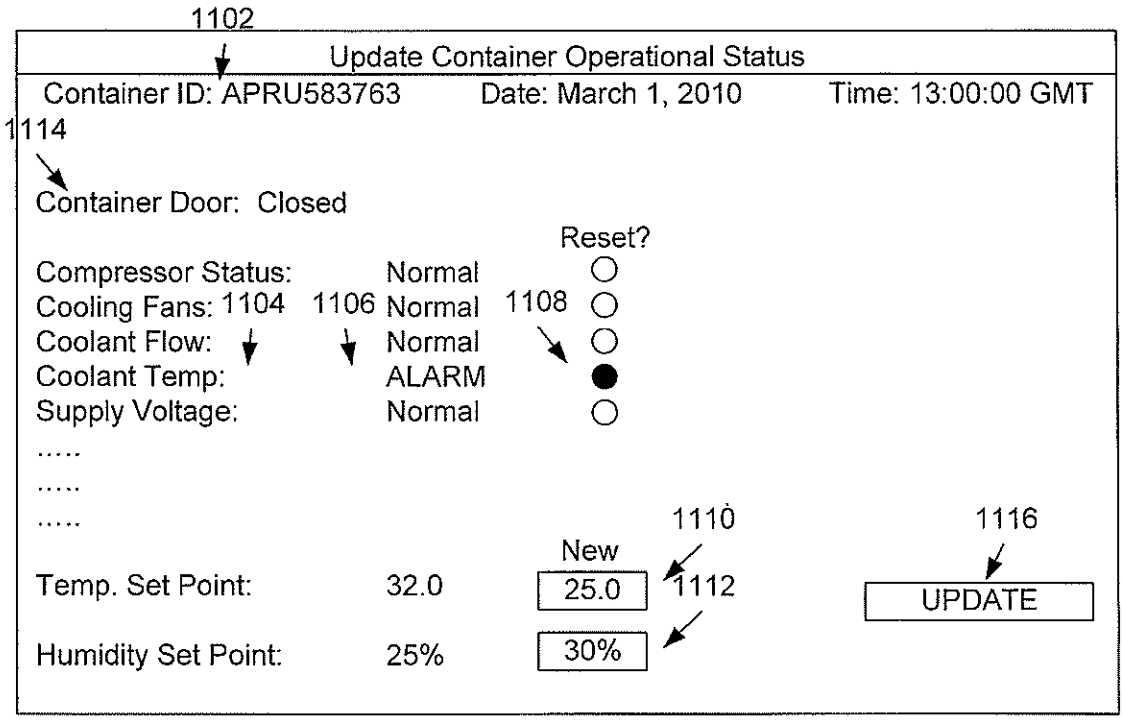
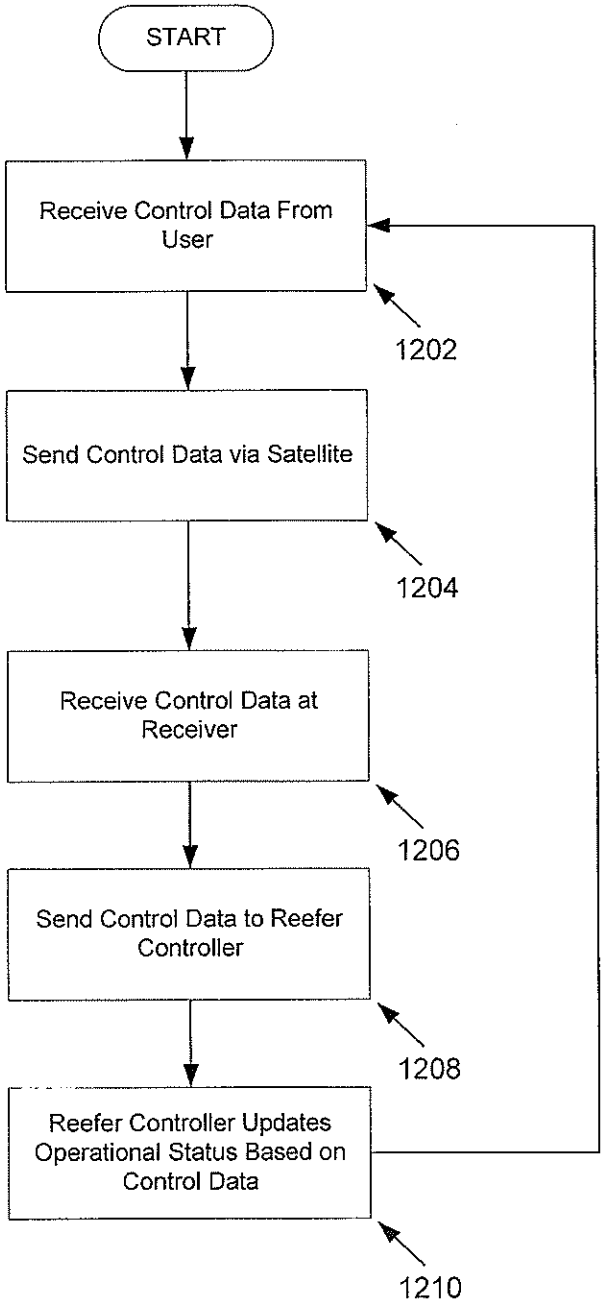

1102
Update Container Operational Status
Container ID: APRU583763
Date: March 1, 2010
Time: 13:00:00 GMT
1114
Container Door: Closed
Reset?
Compressor Status: Normal
Cooling Fans: 1104 1106 Normal 1108
Coolant Flow: Normal
Coolant Temp: ALARM
Supply Voltage: Normal
.....
.....
.....
1110
New
1116
Temp. Set Point: 32.0 25.0 1112
UPDATE
Humidity Set Point: 25% 30%

FIG. 11

FIG. 12


START
Receive Control Data From User
1202
Send Control Data via Satellite
1204
Receive Control Data at Receiver
1206
Send Control Data to Reefer Controller
1208
Reefer Controller Updates Operational Status Based on Control Data
1210

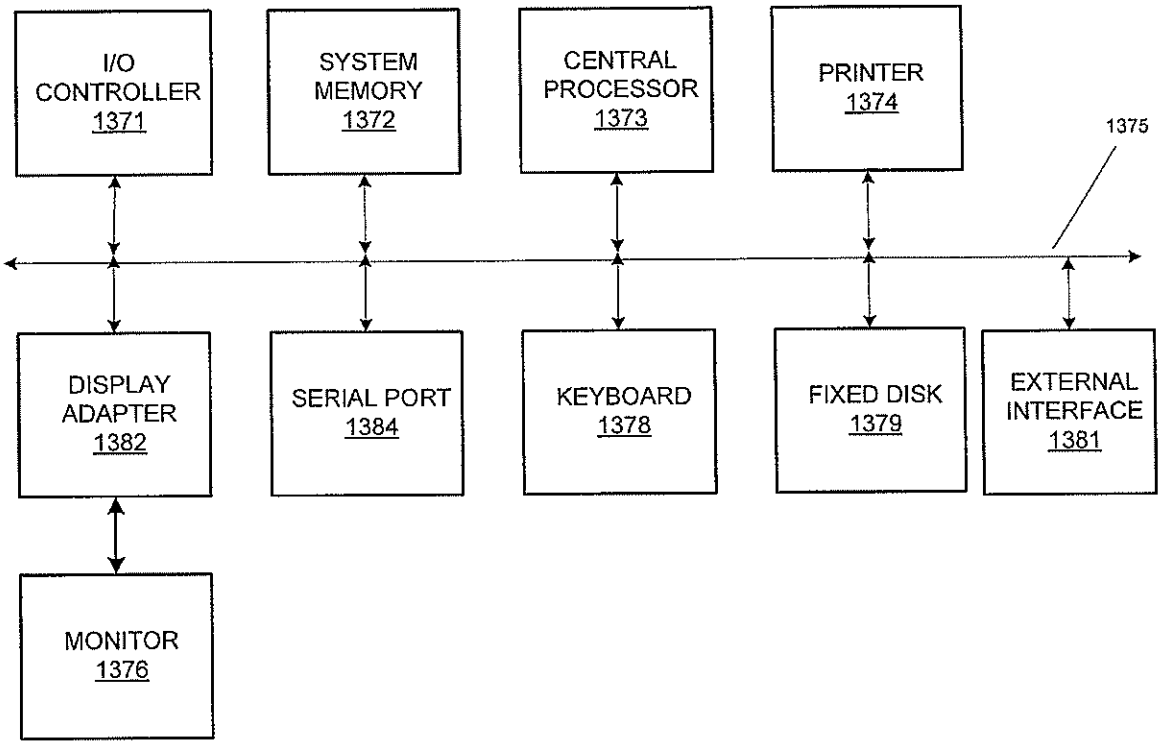

I/O CONTROLLER 1371
SYSTEM MEMORY 1372
CENTRAL PROCESSOR 1373
PRINTER 1374
1375
DISPLAY ADAPTER 1382
SERIAL PORT 1384
KEYBOARD 1378
FIXED DISK 1379
EXTERNAL INTERFACE 1381
MONITOR 1376

FIG. 13

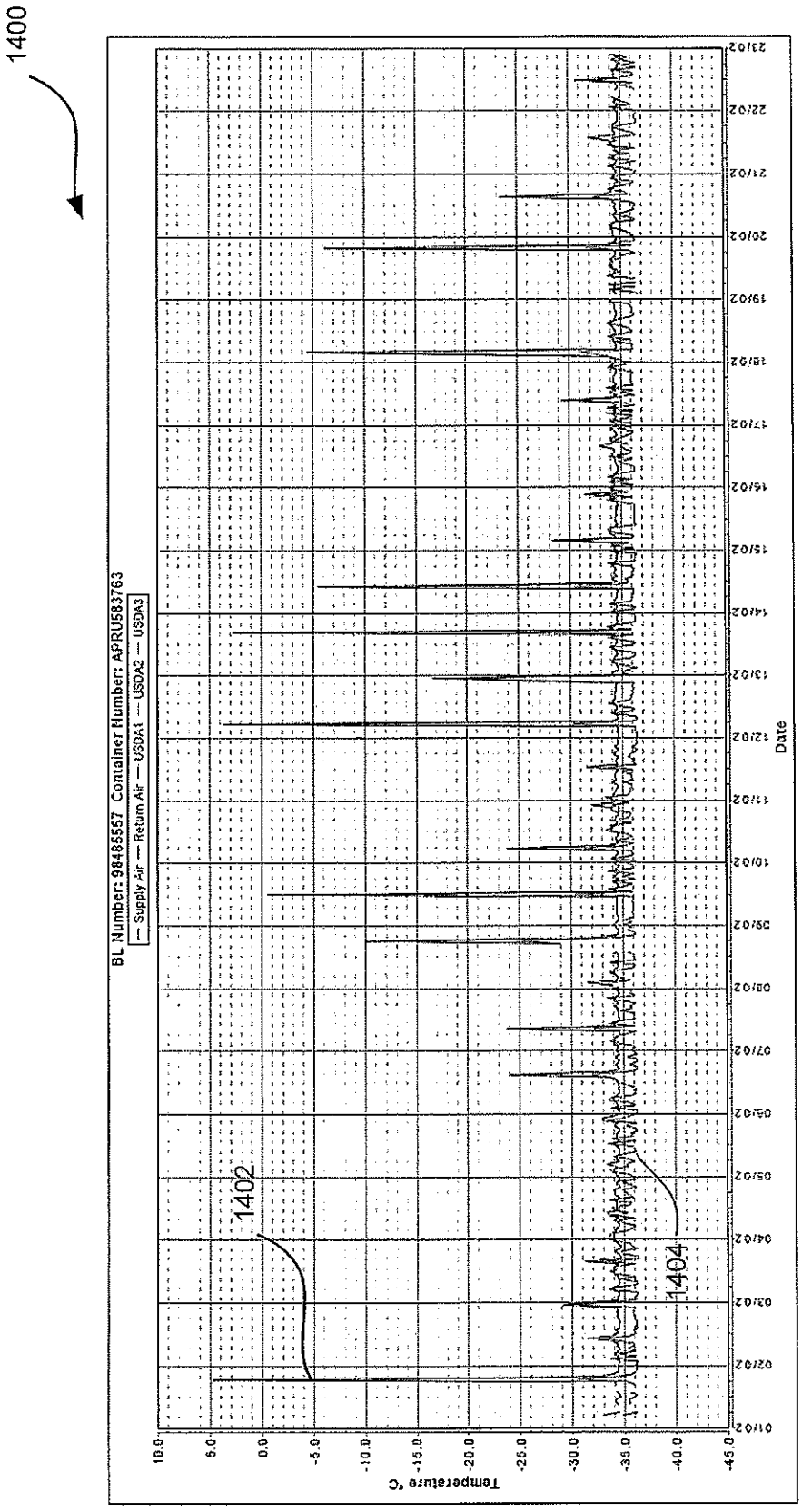

1400
BL Number: 98485557 Container Number: APRU583763
Supply Air
Return Air
USDA1
USDA2
USDA3
Temperature °C
Date
1402
1404

FIG. 14