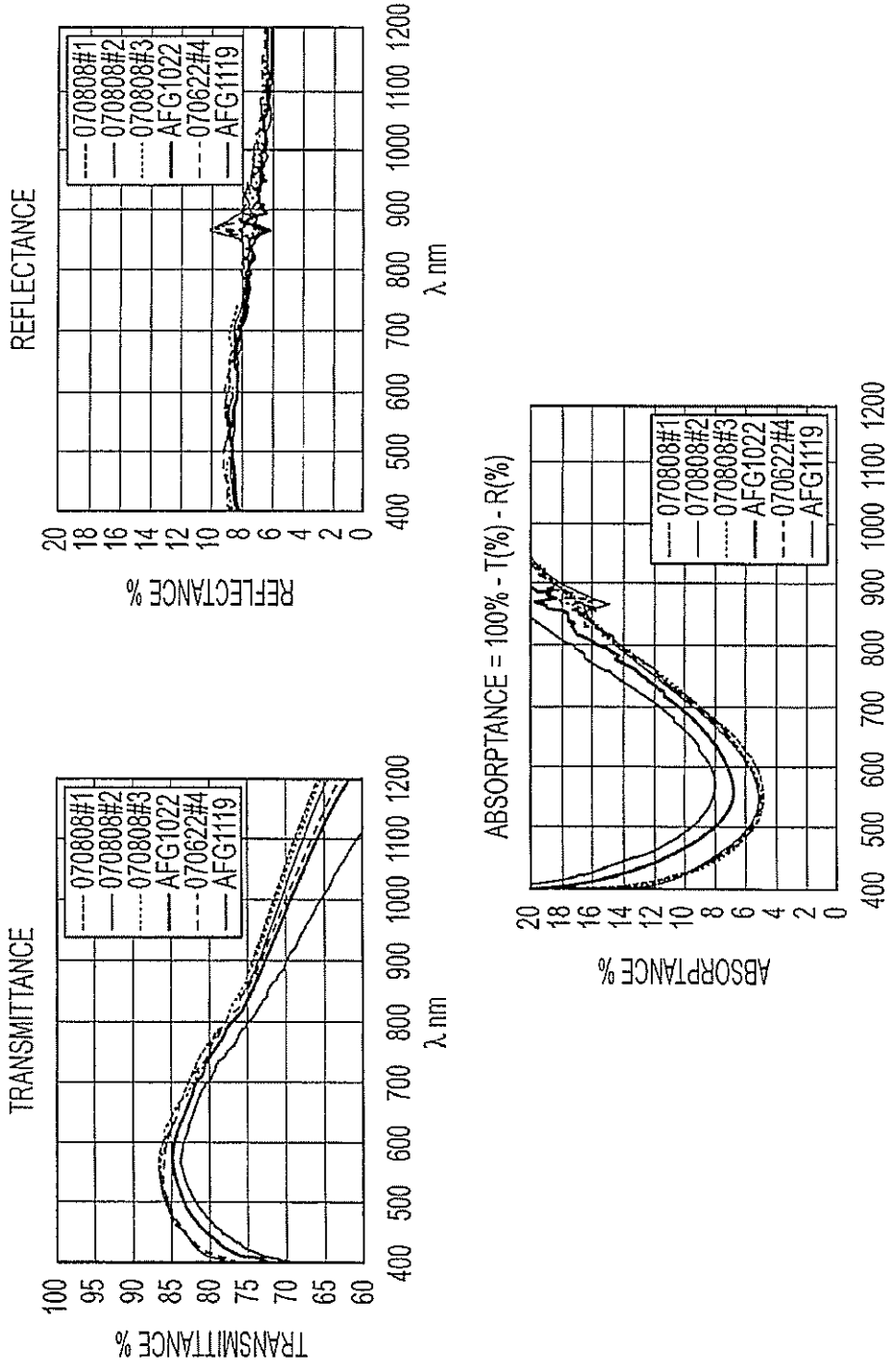

TRANSMITTANCE
TRANSMITTANCE %
λ nm
070808#1
070808#2
070808#3
AFG1022
070622#4
AFG1119
REFLECTANCE
REFLECTANCE %
λ nm
ABSORPTANCE = 100% - T(%) - R(%)
ABSORPTANCE %
λ nm

FIG. 1

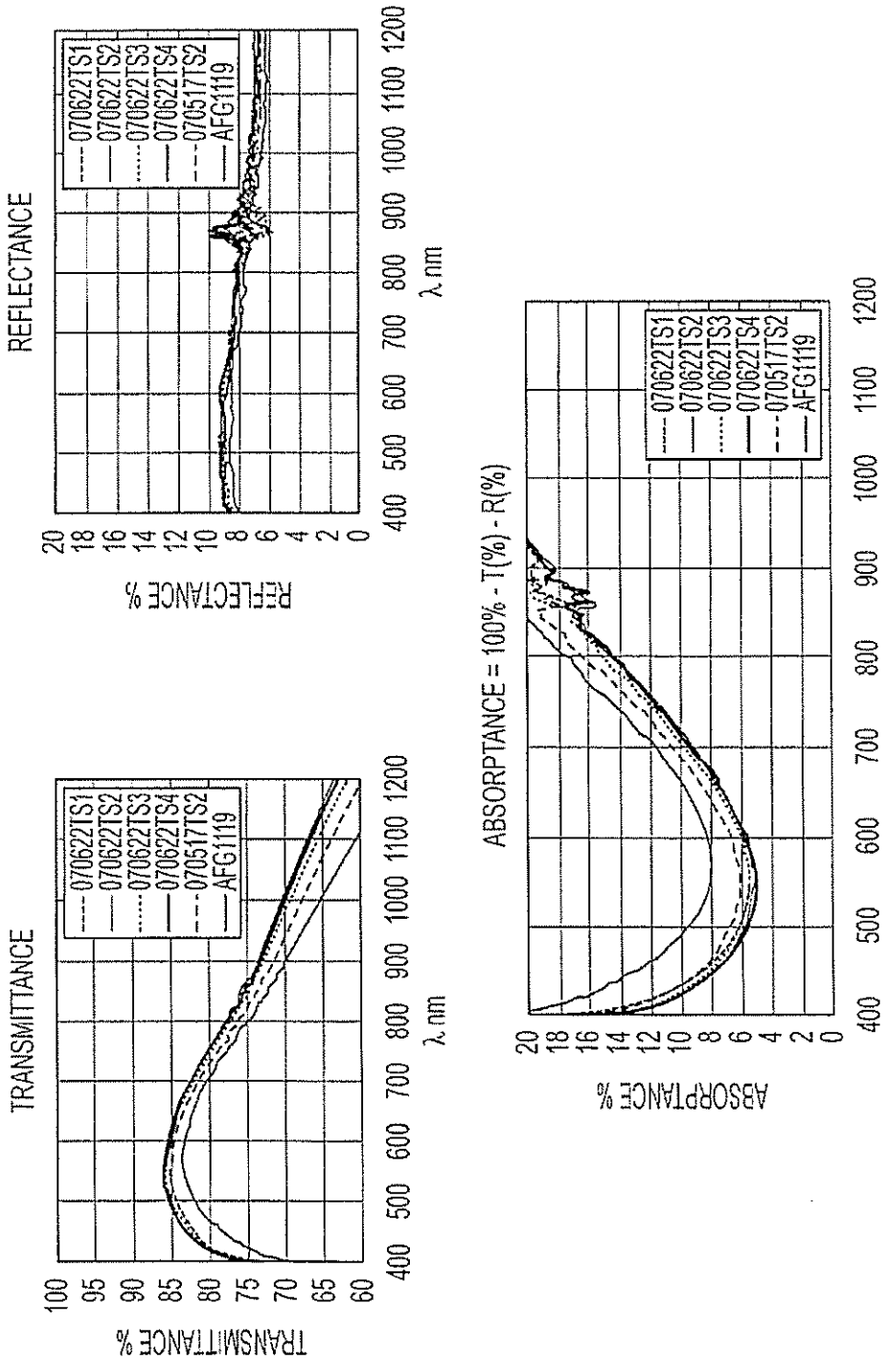
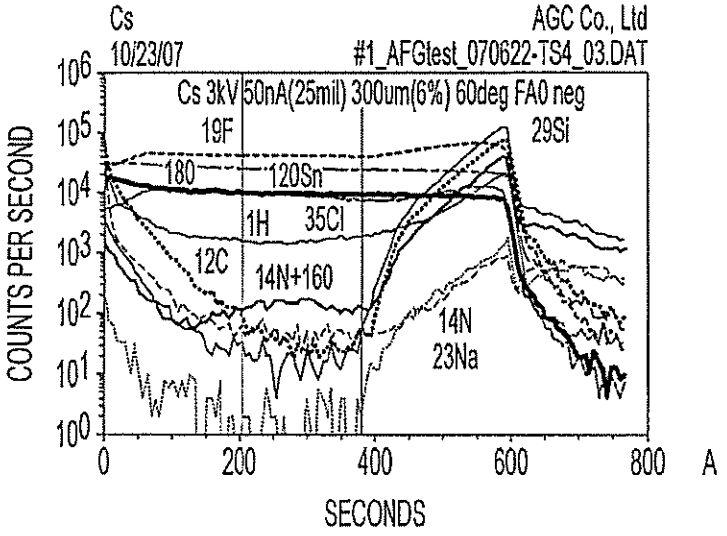
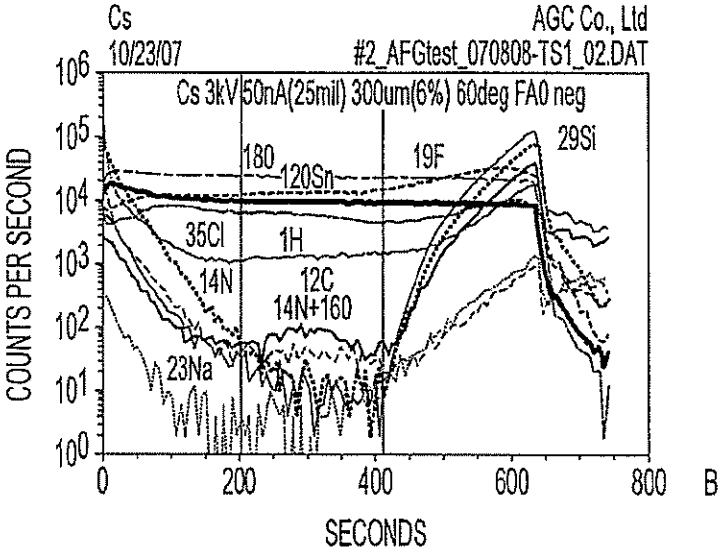

TRANSMITTANCE
070622TS1
070622TS2
070622TS3
070622TS4
070517TS2
AFG1119
100 95 90 85 80 75 70 65 60
TRANSMITTANCE %
400 500 600 700 800 900 1000 1100 1200
λ nm
REFLECTANCE
070622TS1
070622TS2
070622TS3
070622TS4
070517TS2
AFG1119
20 18 16 14 12 10 8 6 4 2 0
REFLECTANCE %
400 500 600 700 800 900 1000 1100 1200
λ nm
ABSORPTANCE = 100% - T(%) - R(%)
070622TS1
070622TS2
070622TS3
070622TS4
070517TS2
AFG1119
20 18 16 14 12 10 8 6 4 2 0
ABSORPTANCE %
400 500 600 700 800 900 1000 1100 1200
λ nm

FIG. 2


Cs
AGC Co., Ltd
10/23/07
#1_AFGtest_070622-TS4_03.DAT
Cs 3kV 50nA(25mil) 300um(6%) 60deg FA0 neg
19F
29Si
180
120Sn
1H
35Cl
12C
14N+160
14N
23Na
COUNTS PER SECOND
SECONDS
A


Cs
AGC Co., Ltd
10/23/07
#2_AFGtest_070808-TS1_02.DAT
Cs 3kV 50nA(25mil) 300um(6%) 60deg FA0 neg
180
120Sn
19F
29Si
35Cl
1H
14N
12C
14N+160
23Na
COUNTS PER SECOND
SECONDS
B

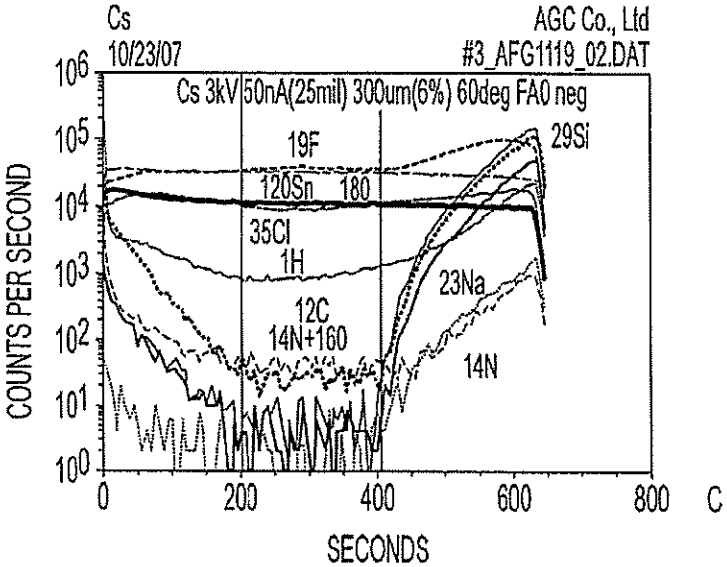

Cs
AGC Co., Ltd
10/23/07
#3_AFG1119_02.DAT
Cs 3kV 50nA(25mil) 300um(6%) 60deg FA0 neg
19F
29Si
120Sn
180
35Cl
1H
23Na
12C
14N+160
14N
COUNTS PER SECOND
SECONDS
C

FIG. 3

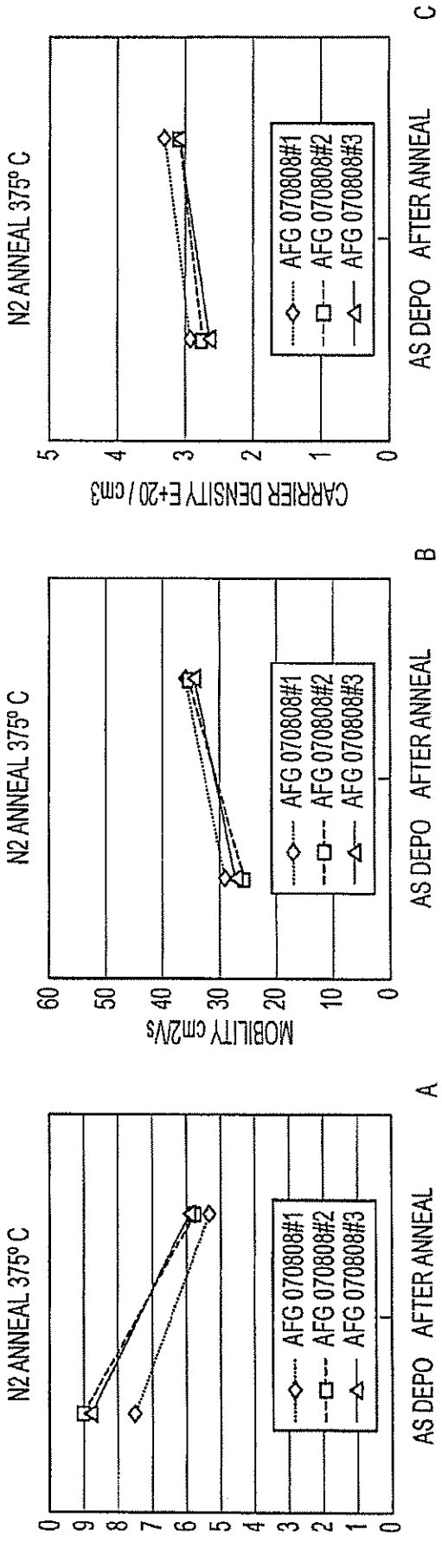

N2 ANNEAL 375° C
AS DEPO
AFTER ANNEAL
A
MOBILITY cm2/V/s
0
10
20
30
40
50
60
AFG 070808#1
AFG 070808#2
AFG 070808#3
B
CARRIER DENSITY E+20 / cm3
0
1
2
3
4
5
C

FIG. 4

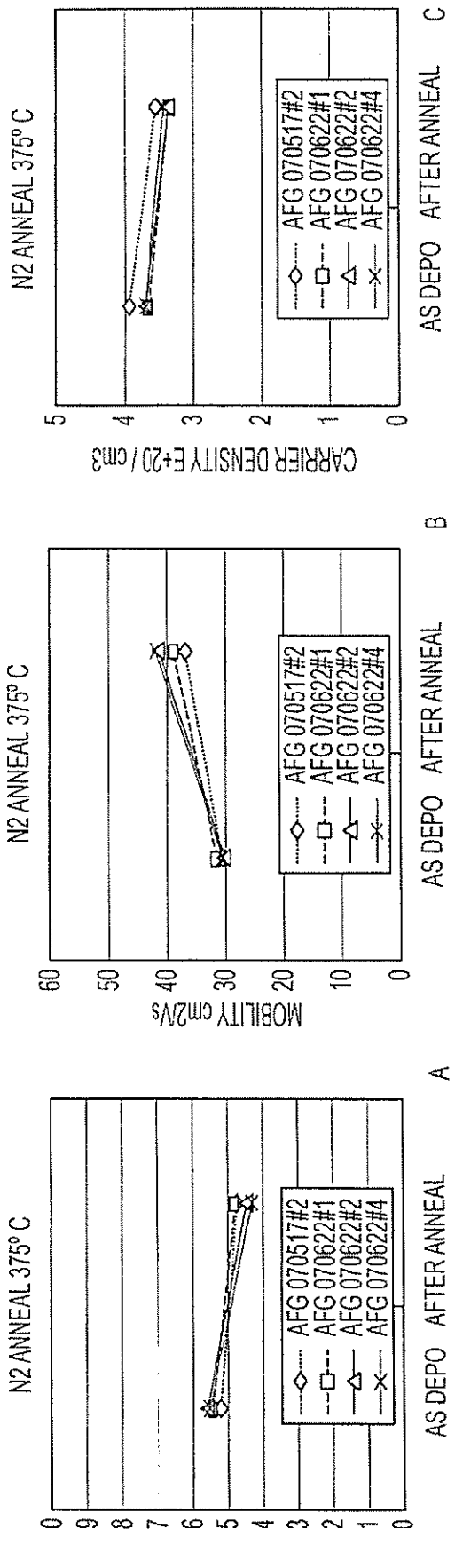

N2 ANNEAL 375° C
AS DEPO
AFTER ANNEAL
A
MOBILITY cm2/Vs
60
50
40
30
20
10
0
AFG 070517#2
AFG 070622#1
AFG 070622#2
AFG 070622#4
B
CARRIER DENSITY E+20 / cm3
5
4
3
2
1
0
C

FIG. 5

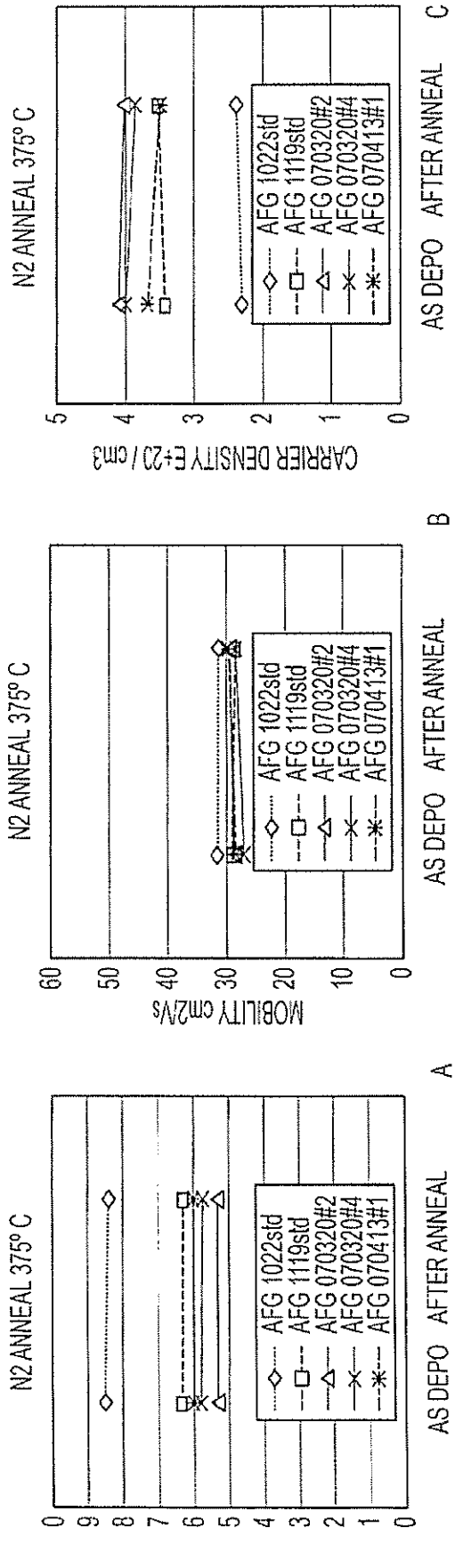

N2 ANNEAL 375° C
AS DEPO
AFTER ANNEAL
A
MOBILITY cm2/V/s
0
10
20
30
40
50
60
AFG 1022std
AFG 1119std
AFG 070320#2
AFG 070320#4
AFG 070413#1
B
CARRIER DENSITY E+20 / cm3
0
1
2
3
4
5
C

FIG. 6

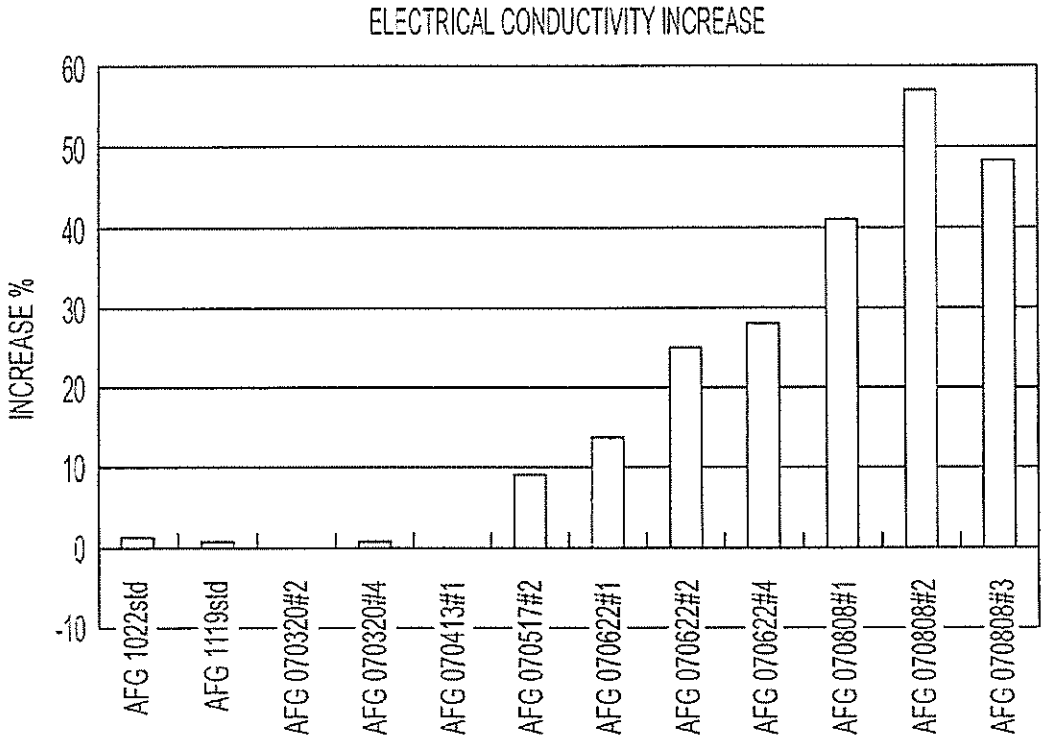

ELECTRICAL CONDUCTIVITY INCREASE
INCREASE %
60
50
40
30
20
10
0
-10
AFG 1022std
AFG 1119std
AFG 070320#2
AFG 070320#4
AFG 070413#1
AFG 070517#2
AFG 070622#1
AFG 070622#2
AFG 070622#4
AFG 070808#1
AFG 070808#2
AFG 070808#3

FIG. 7

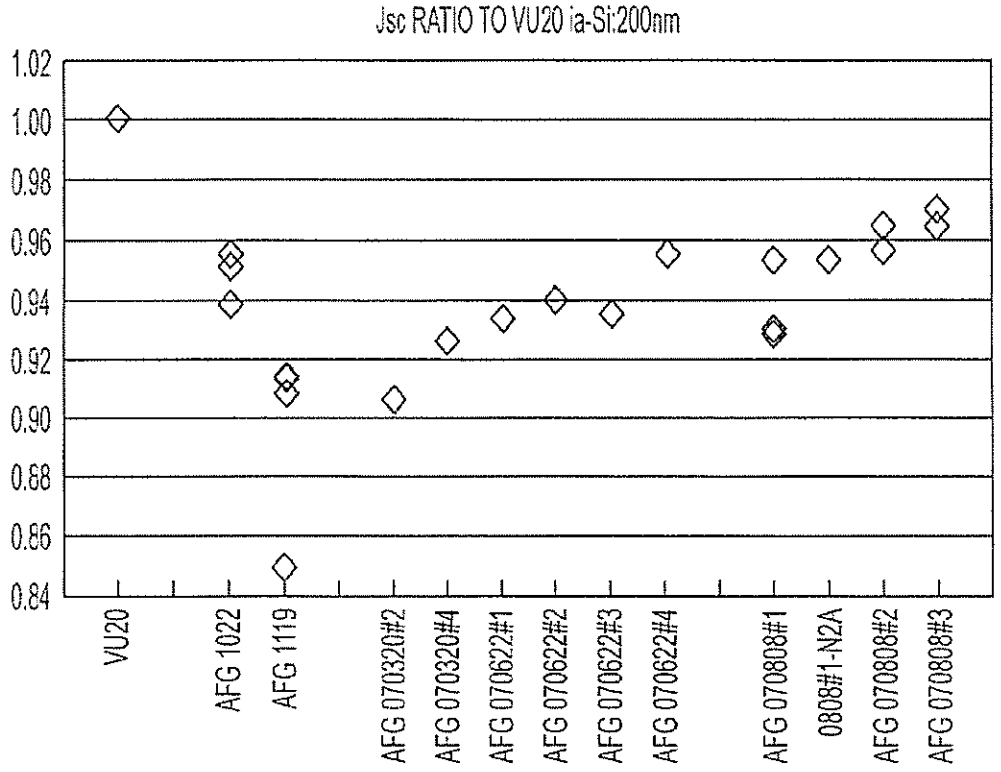

Jsc RATIO TO VU20 ia-Si:200nm
1.02
1.00
0.98
0.96
0.94
0.92
0.90
0.88
0.86
0.84
VU20
AFG 1022
AFG 1119
AFG 070320#2
AFG 070320#4
AFG 070622#1
AFG 070622#2
AFG 070622#3
AFG 070622#4
AFG 070808#1
0808#1-N2A
AFG 070808#2
AFG 070808#3

FIG. 8

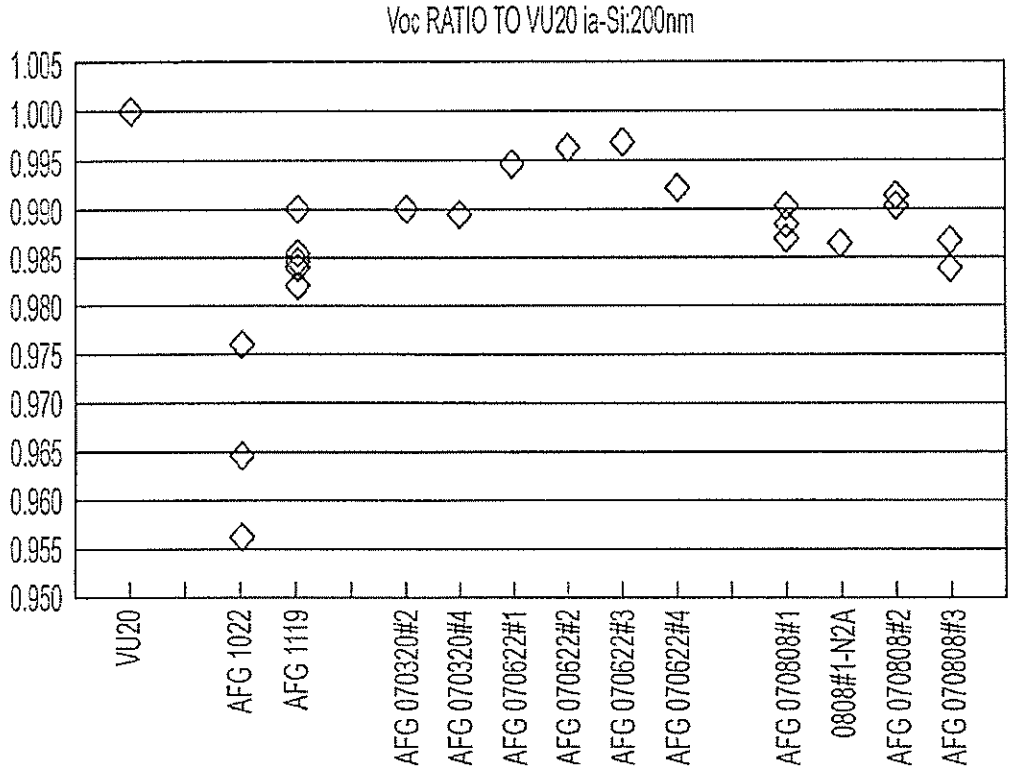

Voc RATIO TO VU20 ia-Si:200nm
1.005
1.000
0.995
0.990
0.985
0.980
0.975
0.970
0.965
0.960
0.955
0.950
VU20
AFG 1022
AFG 1119
AFG 070320#2
AFG 070320#4
AFG 070622#1
AFG 070622#2
AFG 070622#3
AFG 070622#4
AFG 070808#1
0808#1-N2A
AFG 070808#2
AFG 070808#3

FIG. 9

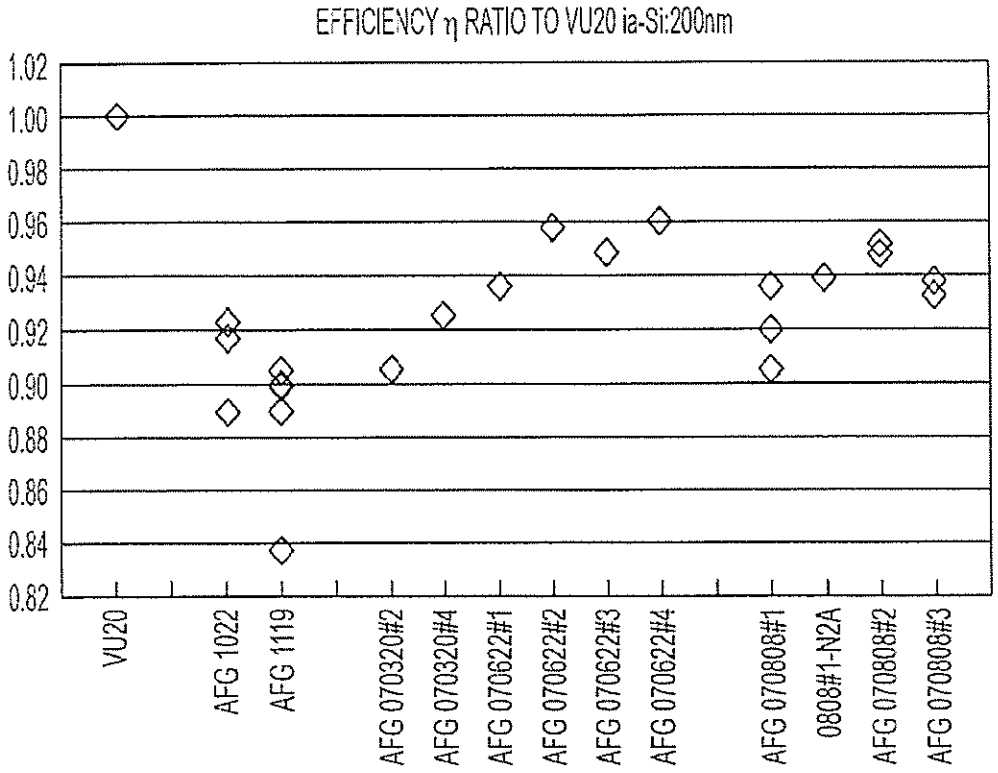

EFFICIENCY η RATIO TO VU20 ia-Si:200nm
1.02
1.00
0.98
0.96
0.94
0.92
0.90
0.88
0.86
0.84
0.82
VU20
AFG 1022
AFG 1119
AFG 070320#2
AFG 070320#4
AFG 070622#1
AFG 070622#2
AFG 070622#3
AFG 070622#4
AFG 070808#1
0808#1-N2A
AFG 070808#2
AFG 070808#3

FIG. 10