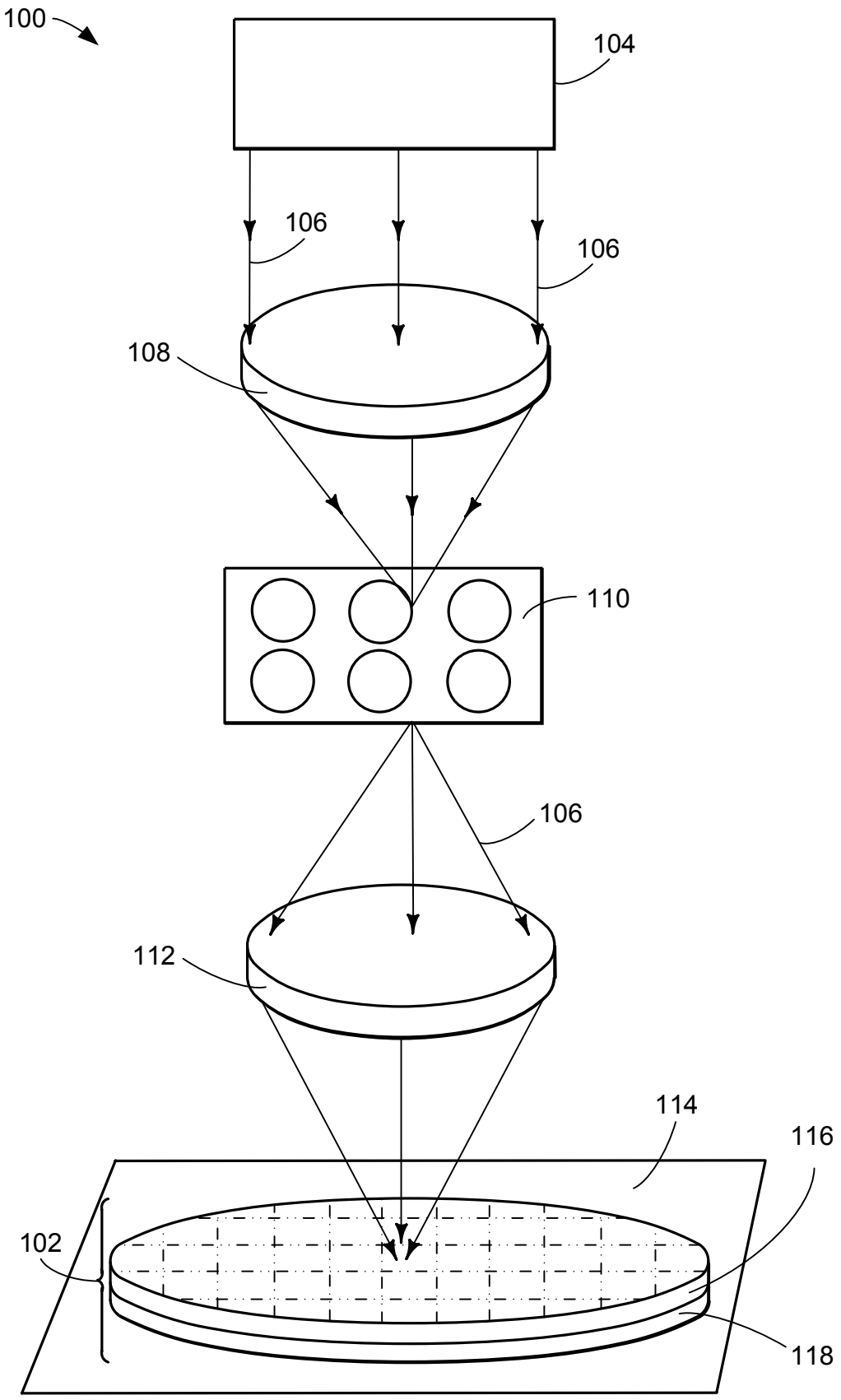

FIG. 1

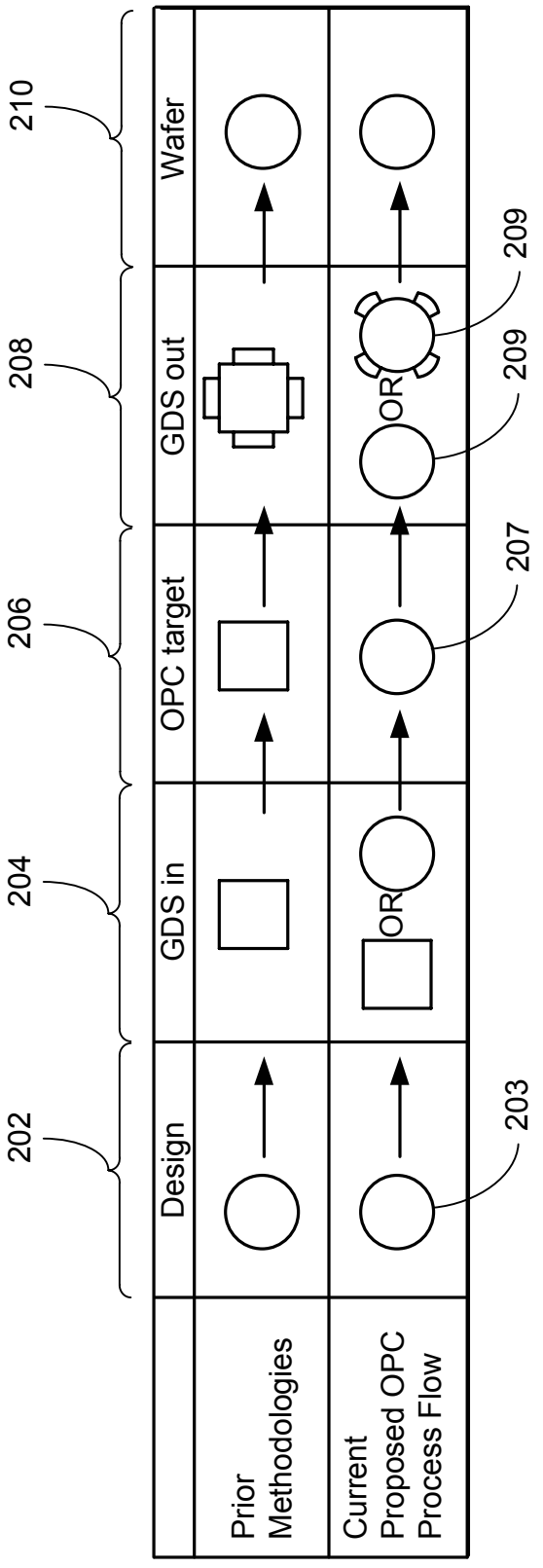
202
204
206
208
210
Design
GDS in
OPC target
GDS out
Wafer
Prior Methodologies
Current Proposed OPC Process Flow
OR
OR
203
207
209
209

FIG. 2

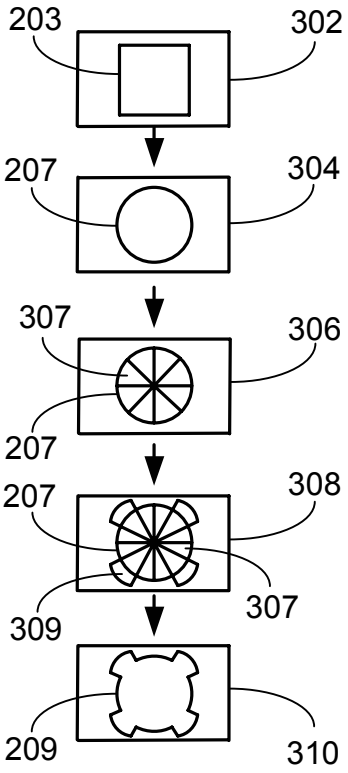
203
302
207
304
307
306
207
207
308
307
309
209
310

FIG. 3

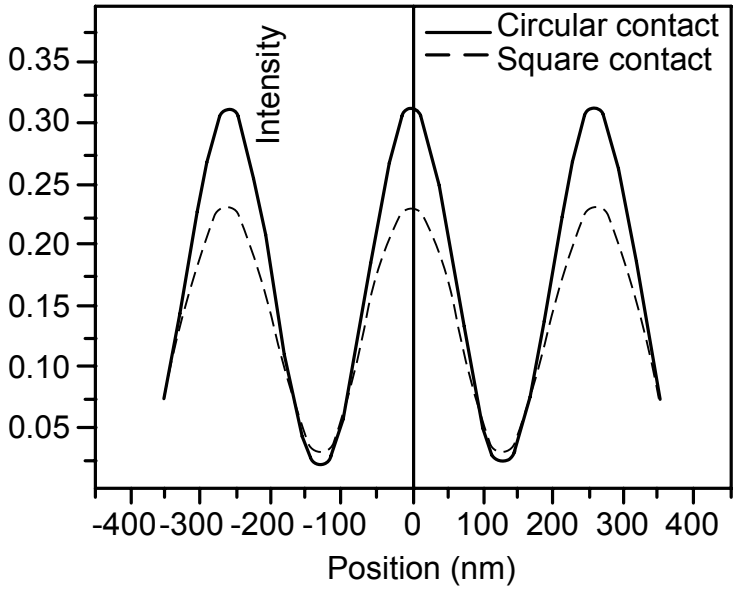
Circular contact
Square contact
Intensity
0.35
0.30
0.25
0.20
0.15
0.10
0.05
-400 -300 -200 -100 0 100 200 300 400
Position (nm)

FIG. 4

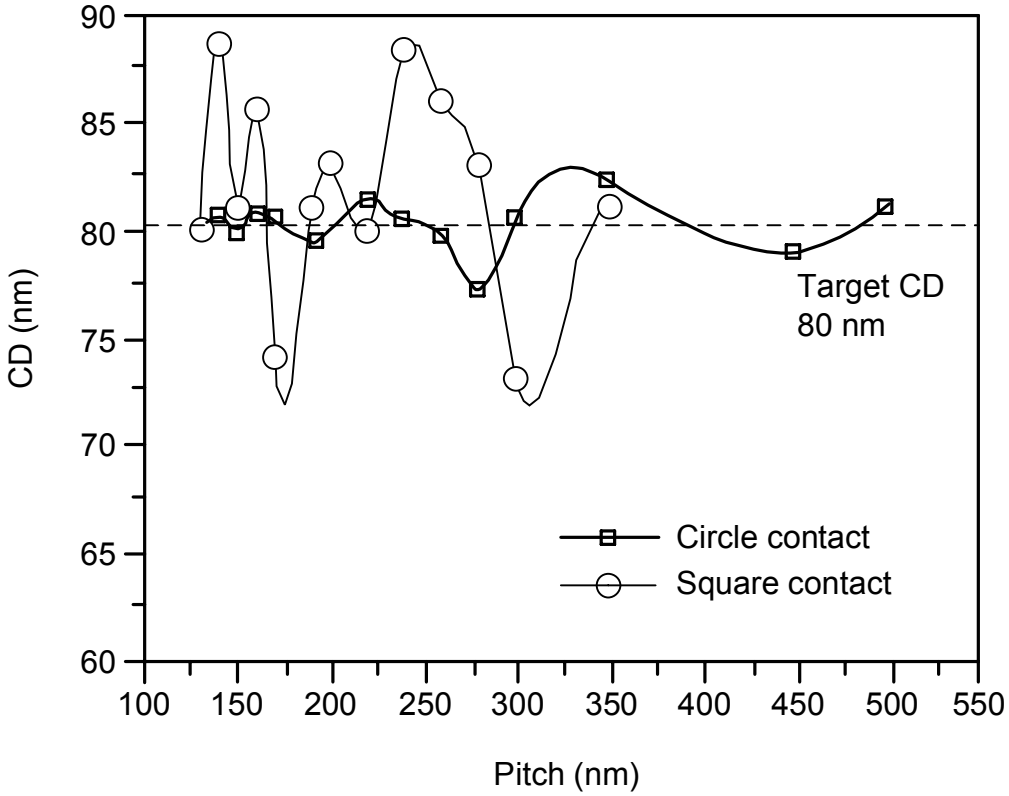
90
85
80
75
70
65
60
CD (nm)
100
150
200
250
300
350
400
450
500
550
Pitch (nm)
Target CD
80 nm
Circle contact
Square contact

FIG. 5

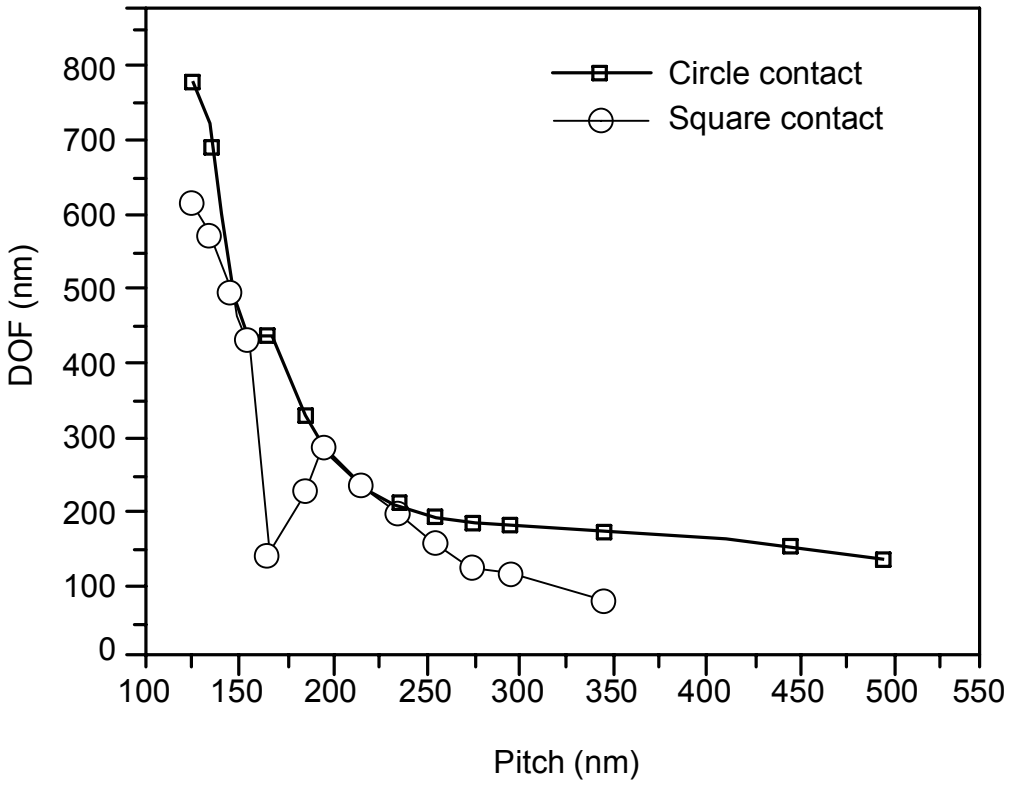
800
700
600
500
400
300
200
100
0
DOF (nm)
100
150
200
250
300
350
400
450
500
550
Pitch (nm)
Circle contact
Square contact

FIG. 6

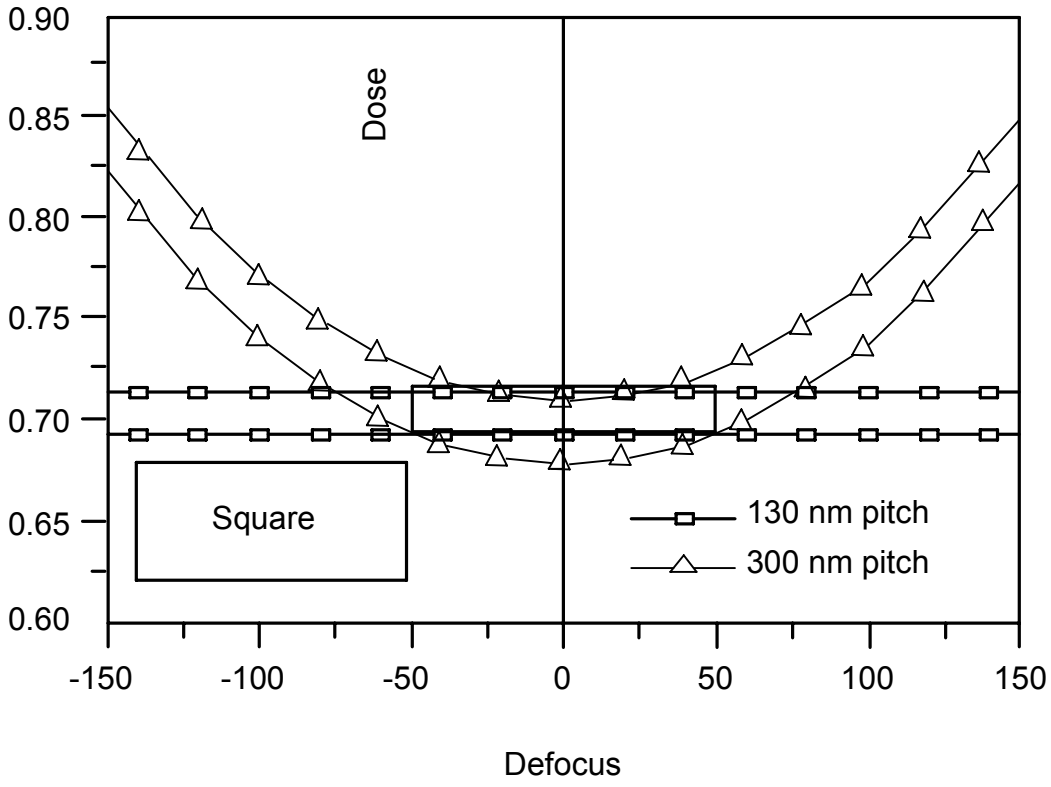
0.90
0.85
0.80
0.75
0.70
0.65
0.60
Dose
Square
130 nm pitch
300 nm pitch
-150
-100
-50
0
50
100
150
Defocus

FIG. 7

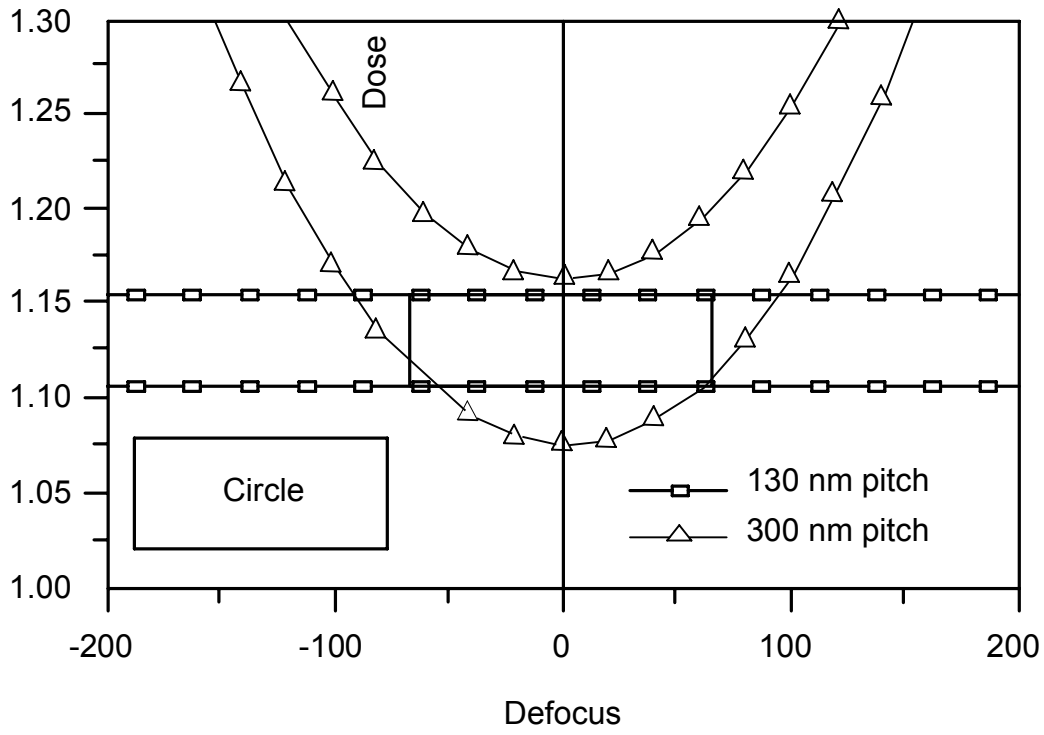
1.30
1.25
1.20
1.15
1.10
1.05
1.00
Dose
Circle
130 nm pitch
300 nm pitch
-200
-100
0
100
200
Defocus

FIG. 8

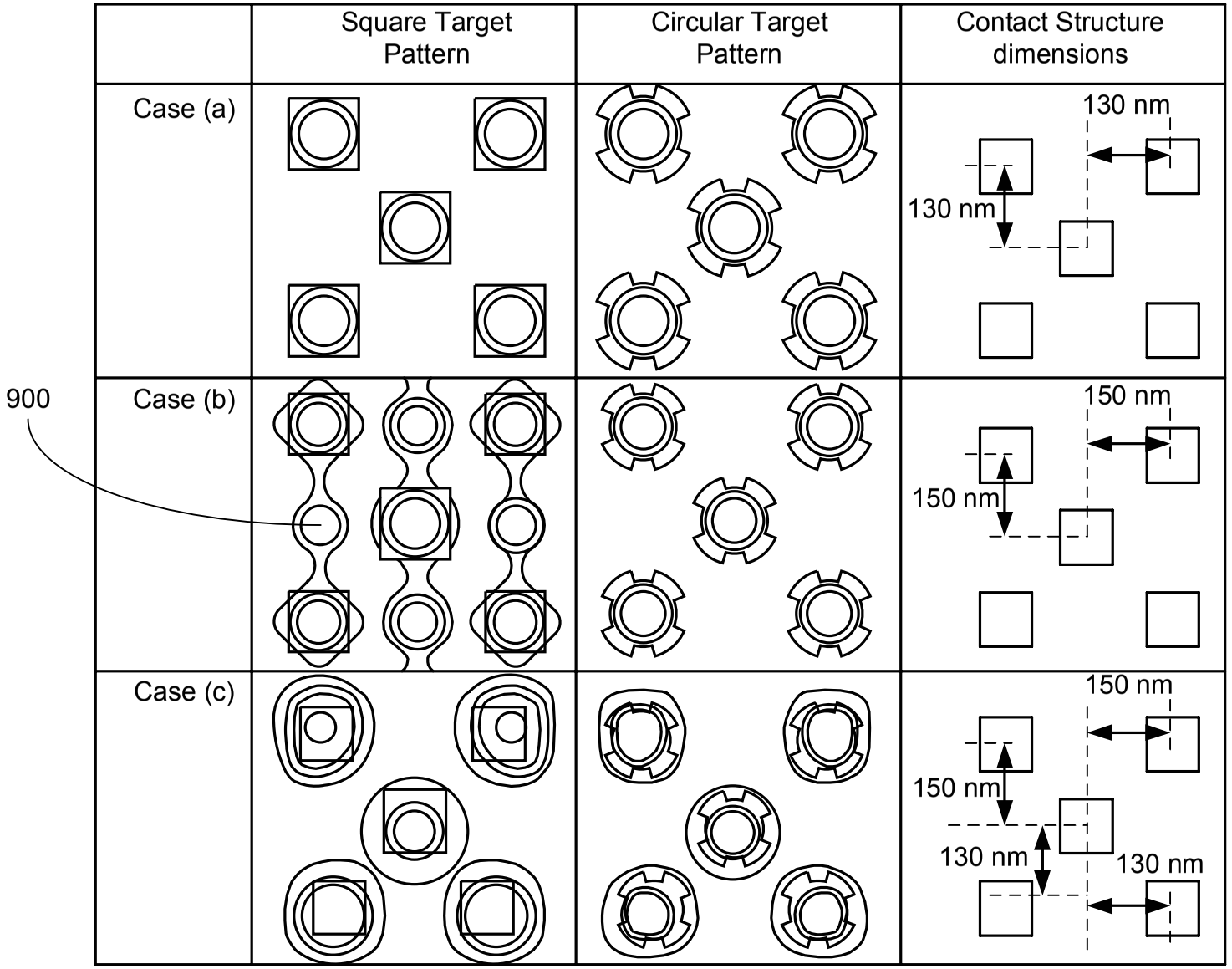
Square Target Pattern
Circular Target Pattern
Contact Structure dimensions
Case (a)
Case (b)
Case (c)
900
130 nm
130 nm
150 nm
150 nm
150 nm
150 nm
130 nm
130 nm

FIG. 9

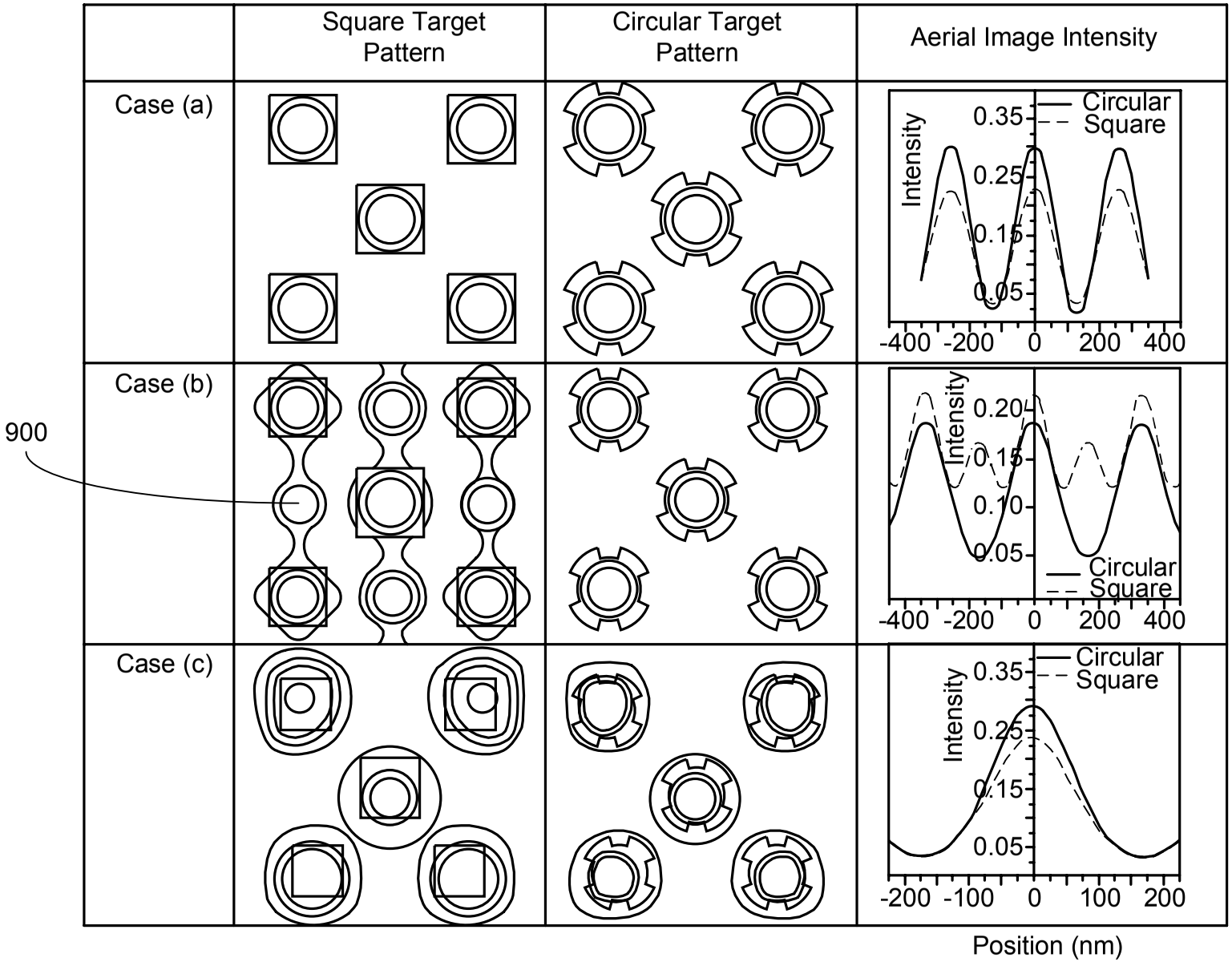
Square Target Pattern
Circular Target Pattern
Aerial Image Intensity
Case (a)
Case (b)
Case (c)
900
Intensity
Circular
Square
0.35
0.25
0.15
0.05
-400 -200 0 200 400
0.20
0.10
-200 -100 0 100 200
Position (nm)

FIG. 10

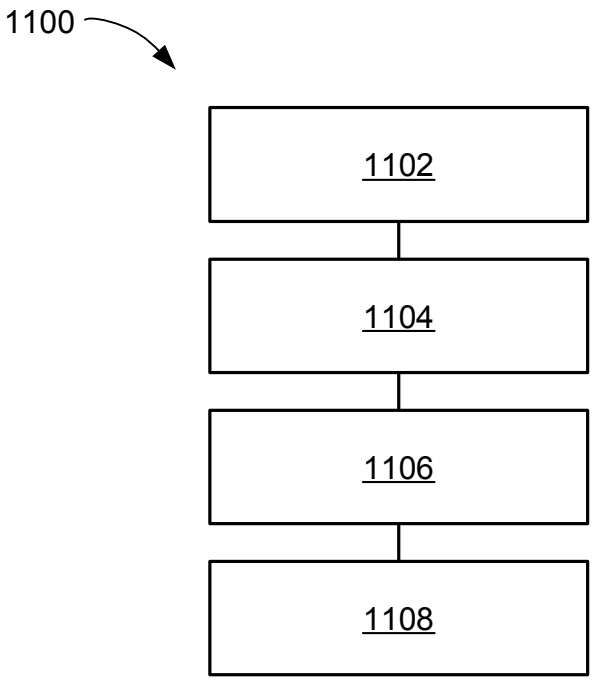

FIG. 11