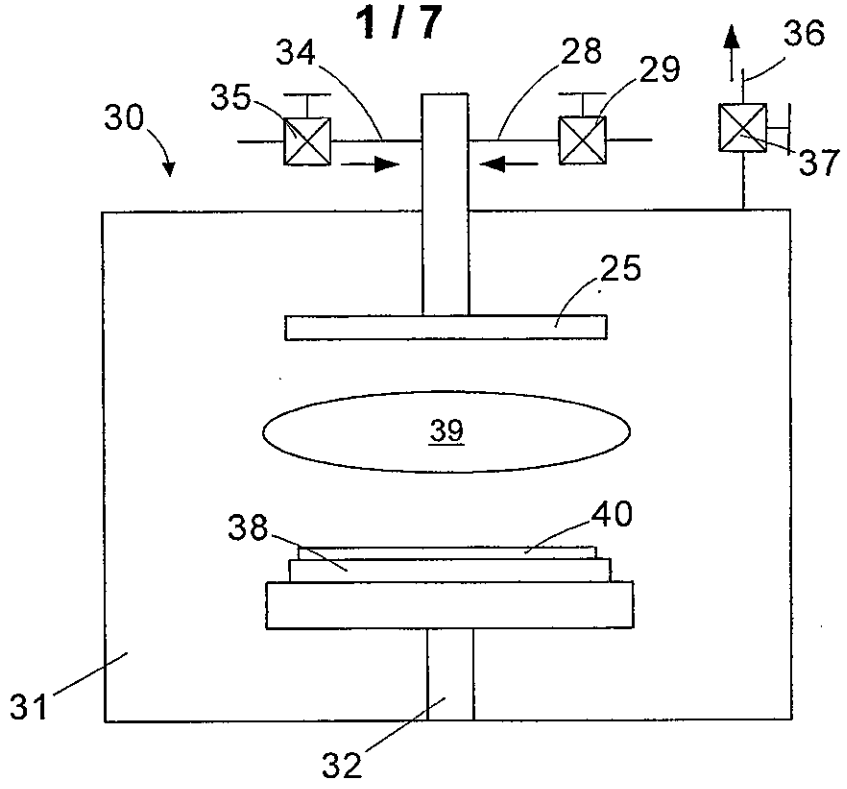


Figure 1

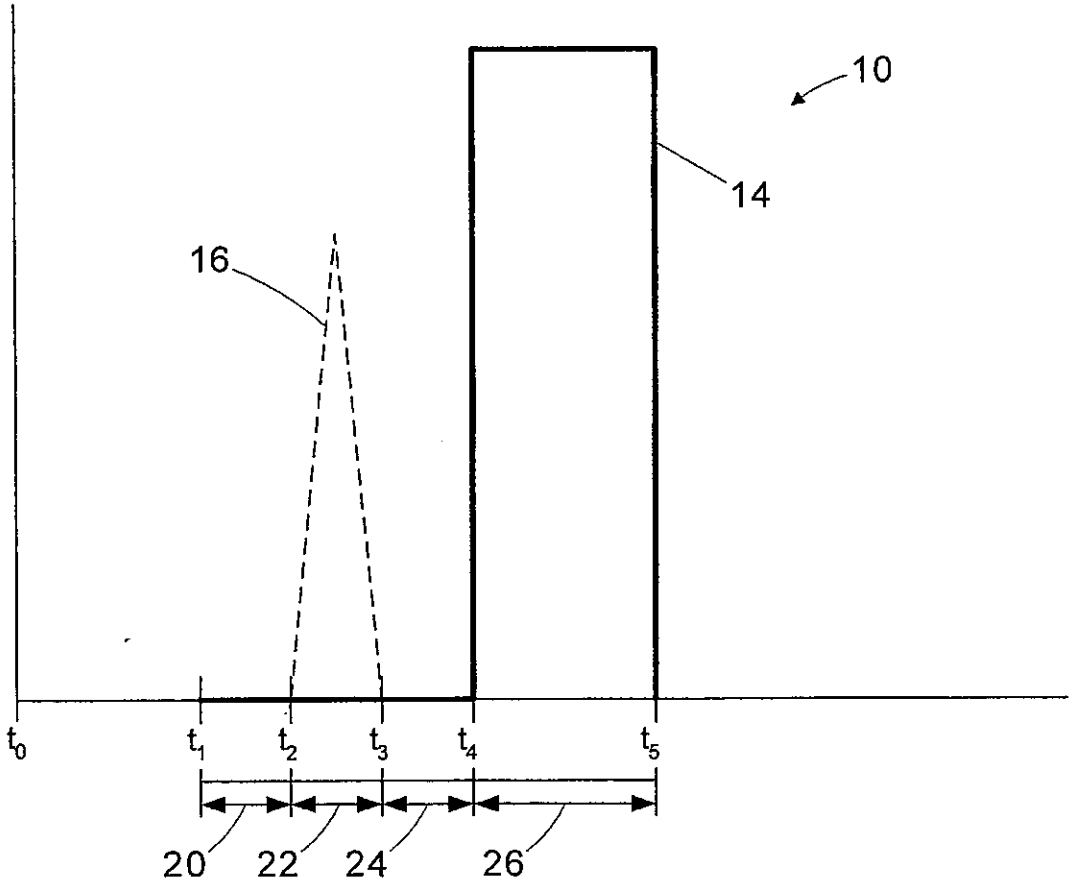


Figure 3

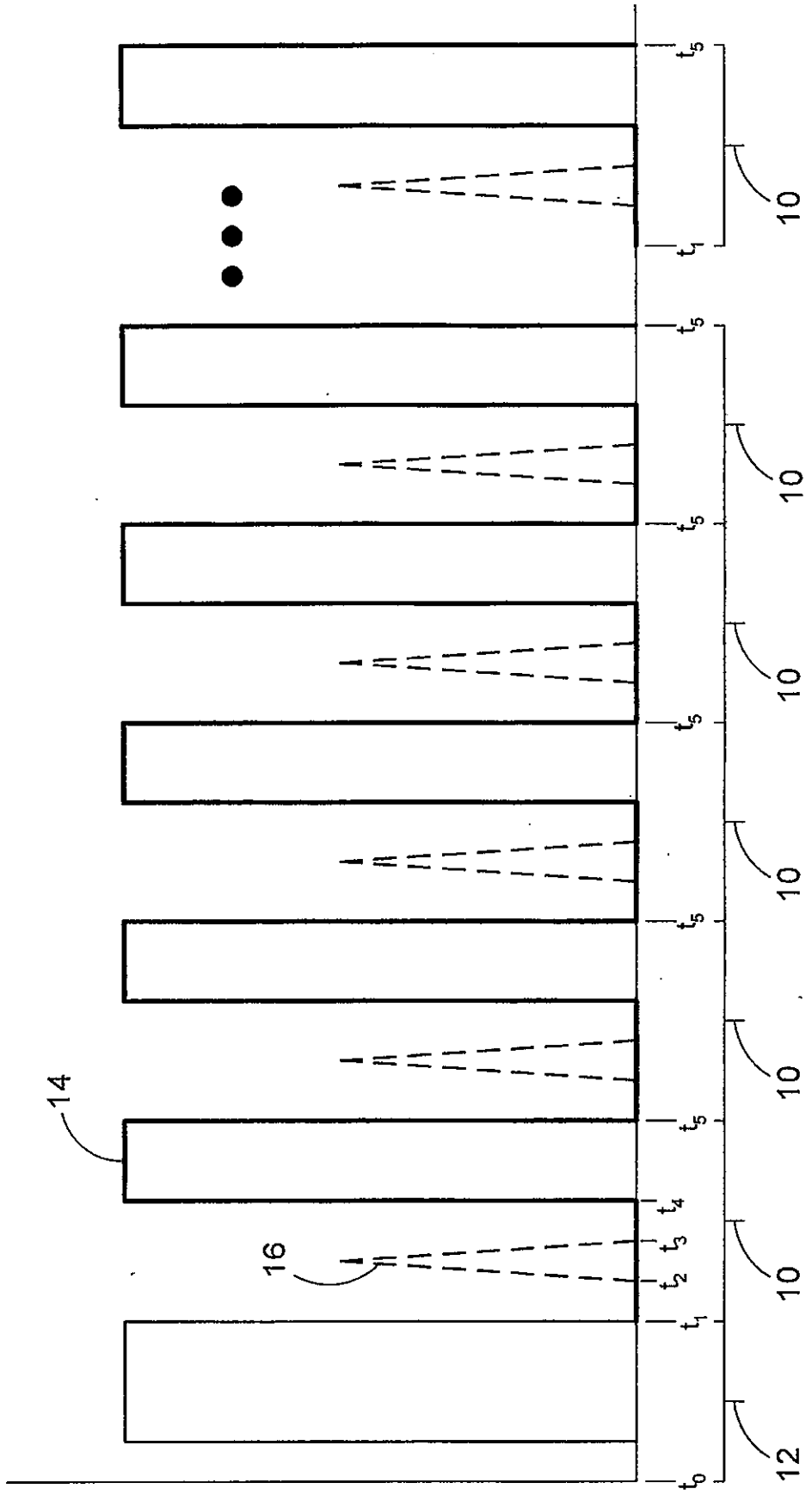


Figure 2

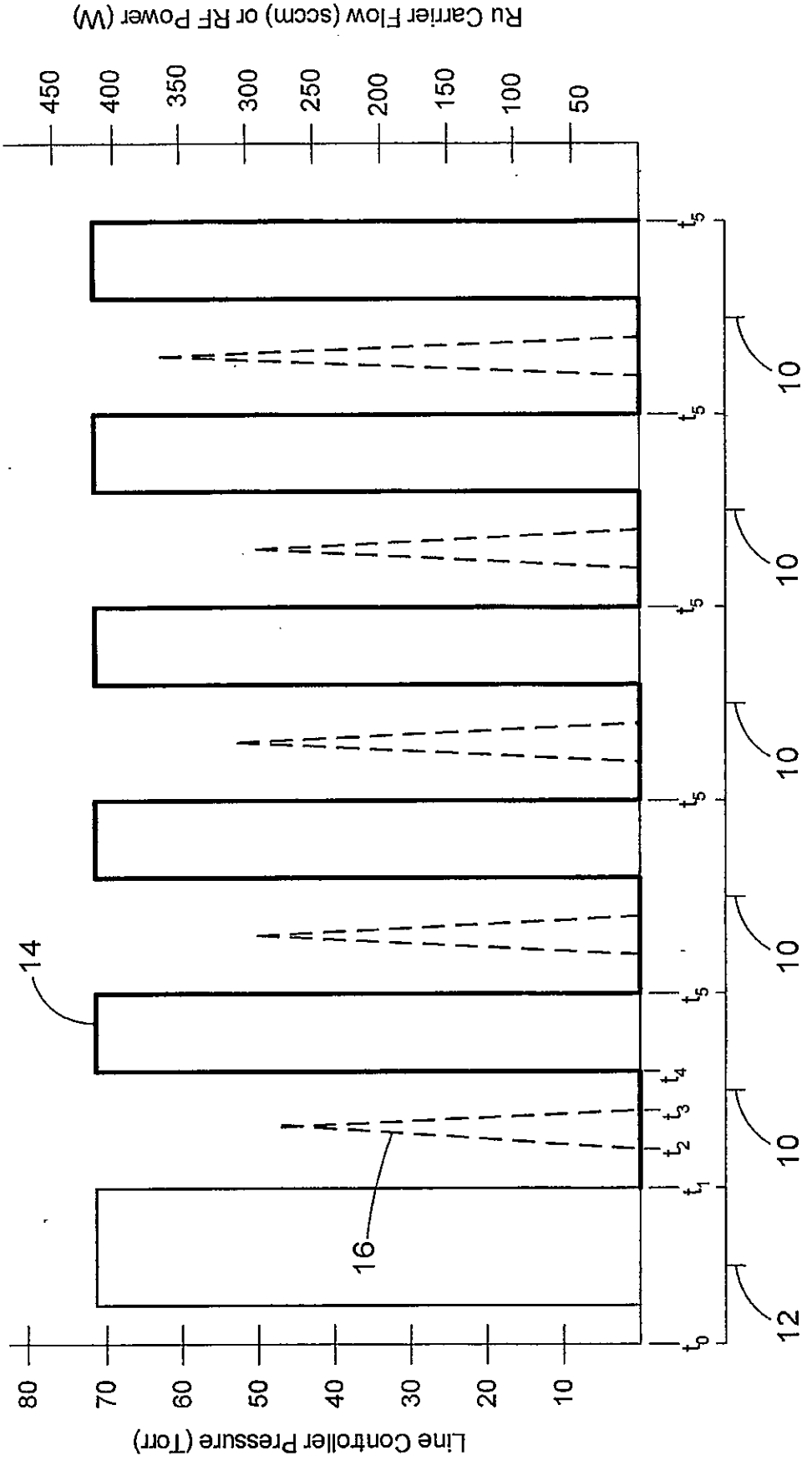

Ru Carrier Flow (sccm) or RF Power (W)
450
400
350
300
250
200
150
100
50
Line Controller Pressure (Torr)
80
70
60
50
40
30
20
10
t_0
t_1
t_2
t_3
t_4
t_5
10
12
14
16

Figure 4

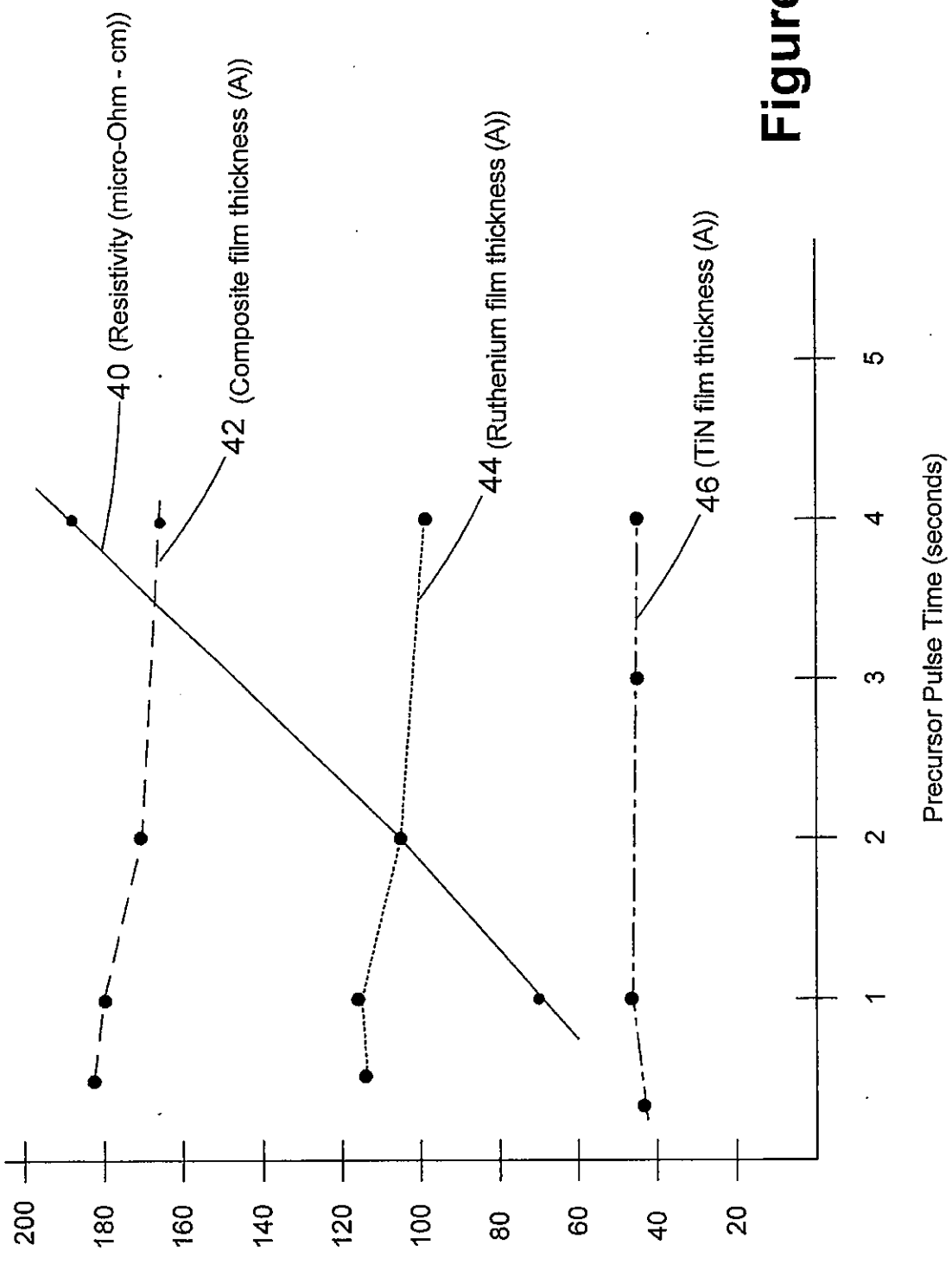

40 (Resistivity (micro-Ohm - cm))
42 (Composite film thickness (A))
44 (Ruthenium film thickness (A))
46 (TiN film thickness (A))
200
180
160
140
120
100
80
60
40
20
1
2
3
4
5
Precursor Pulse Time (seconds)

Figure 5

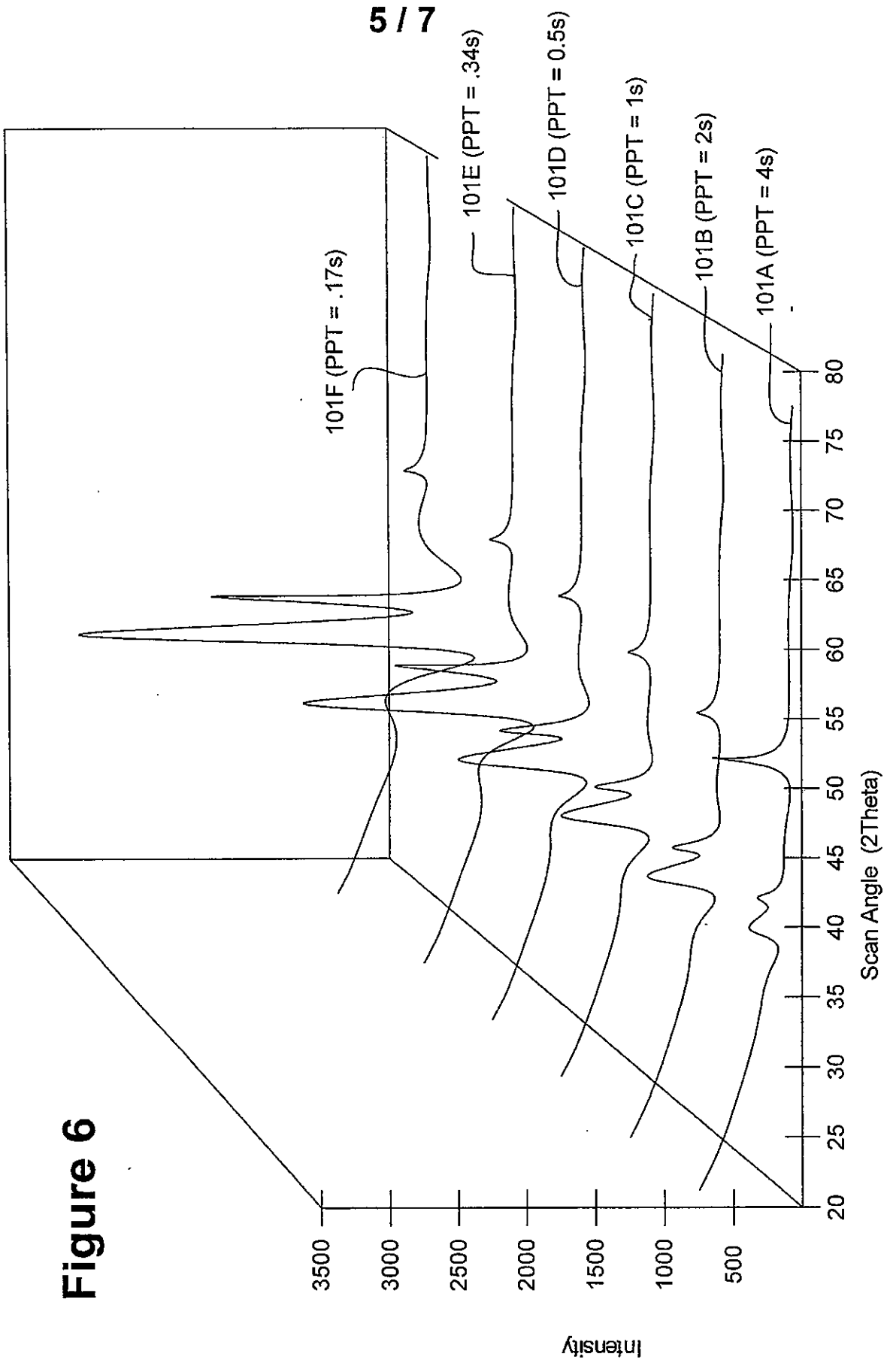

101F (PPT = .17s)
101E (PPT = .34s)
101D (PPT = 0.5s)
101C (PPT = 1s)
101B (PPT = 2s)
101A (PPT = 4s)
Intensity
3500
3000
2500
2000
1500
1000
500
20
25
30
35
40
45
50
55
60
65
70
75
80
Scan Angle (2Theta)

Figure 6

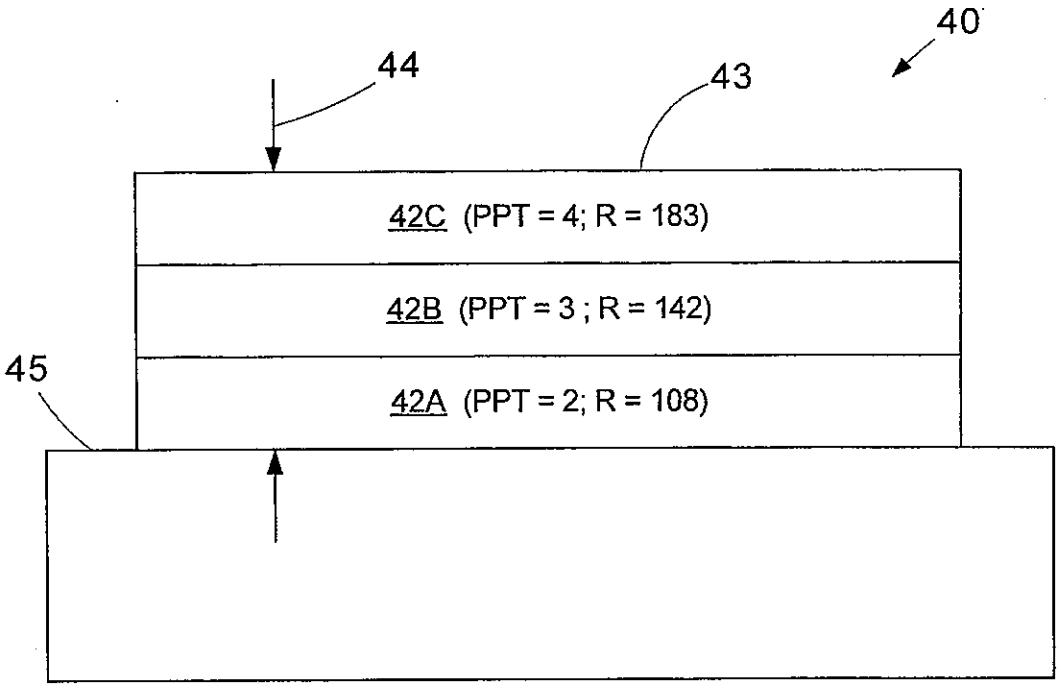


Figure 7

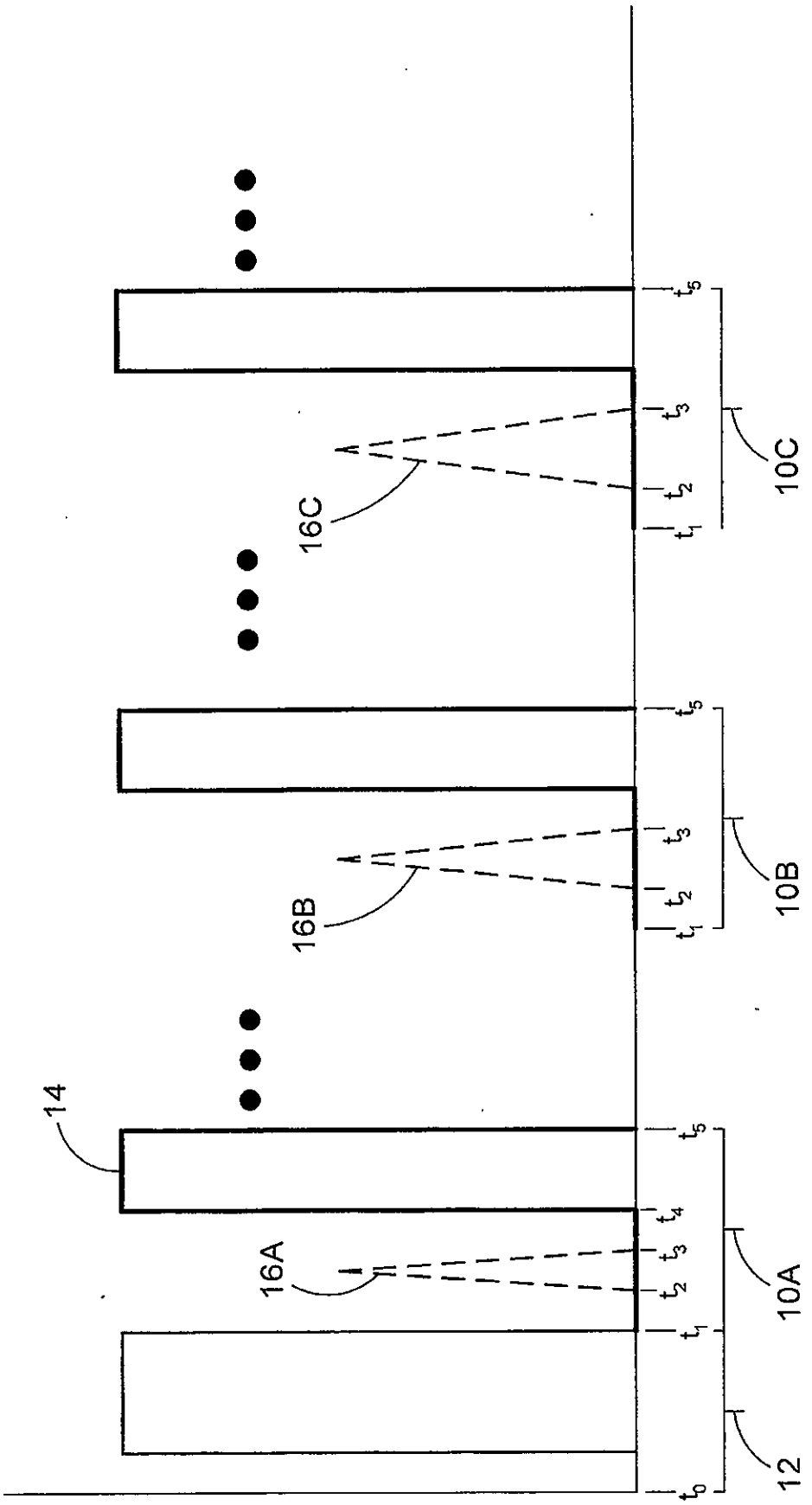


Figure 8