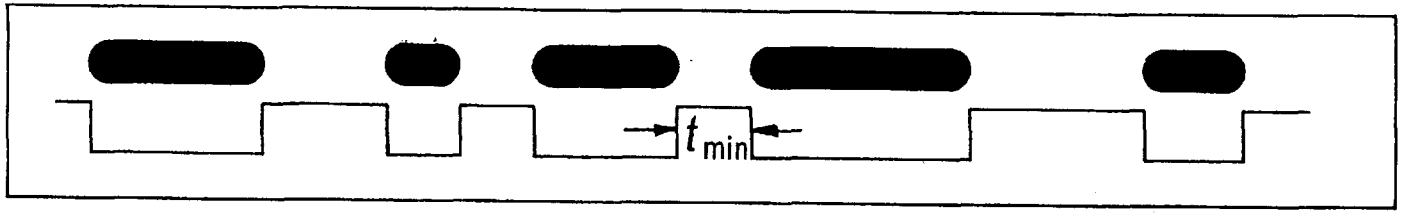
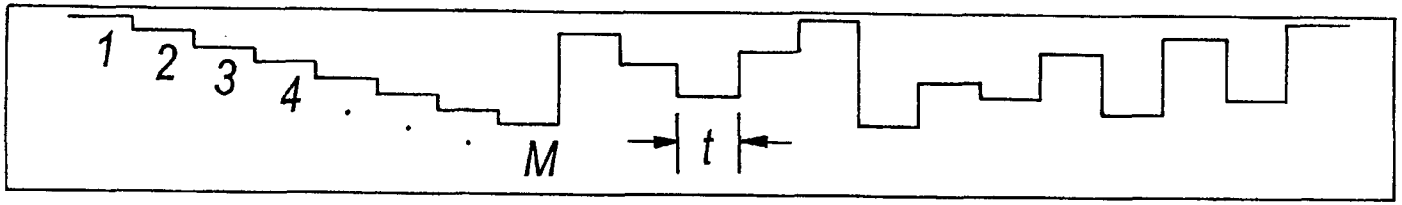
FIG. 1

Multi-States Encoding

Conventional Encoding



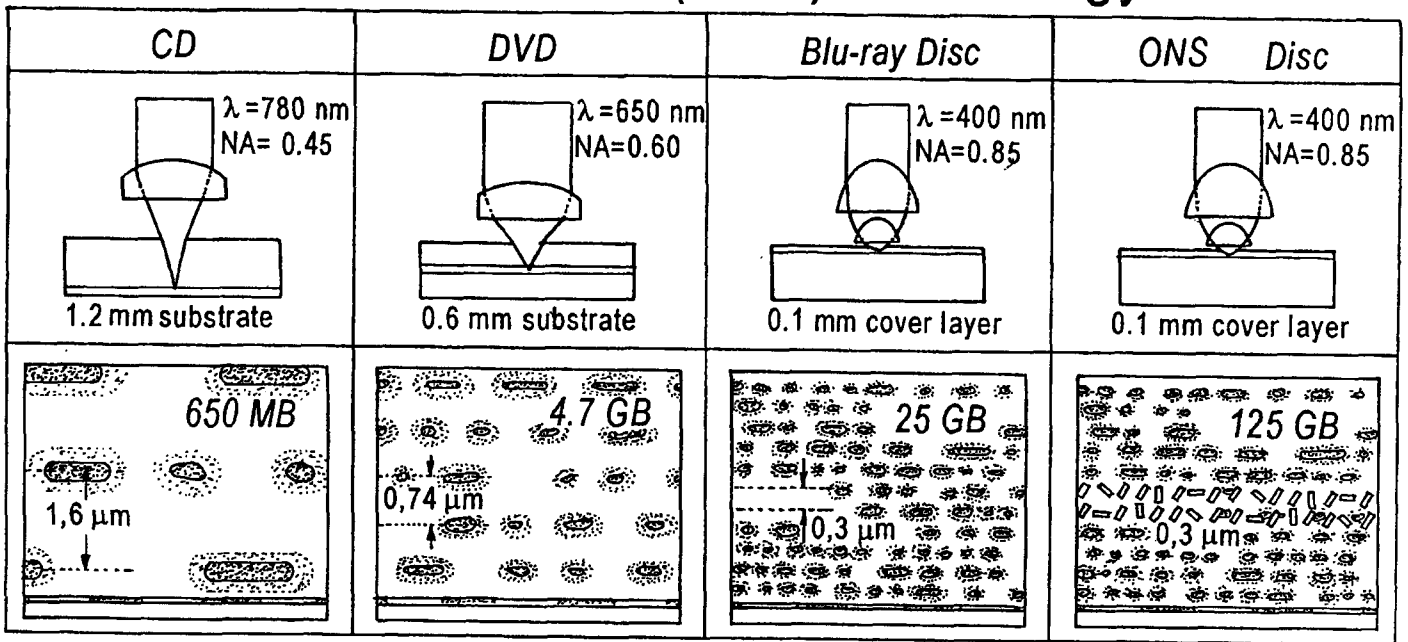
Multi-States Encoding



Areal density and data rate goes up by packing more information (M states) into one recording cell.

FIG. 2

Oriented Nano-Structure (ONS) Technology



1st generation	2nd generation	3rd generation	4th generation
Audio	SD Video	HD Video	HD Compact Video
0.7 GB	4.7/8.5 GB	25/50 GB	125 GB
1x: 1.2 Mb/s	1x: 11 Mb/s	1x: 36 Mb/s	1x: 180 Mb/s
λ=780 nm	λ= 650 nm	λ= 405 nm	L=405 nm
NA = 0.45	NA = 0.60	NA = 0.85	NA=0.85
1.2 mm cover	0.6 mm cover	0.1 mm cover	

Enable 5x or more in storage capacity and data rate of optical discs with similar far-field optics of convention optical drive.

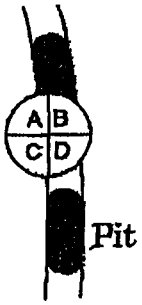


FIG. 3(A)

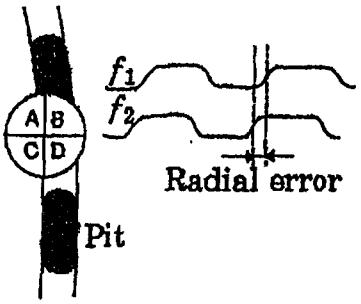


FIG. 3(B)

FIG. 3(C)

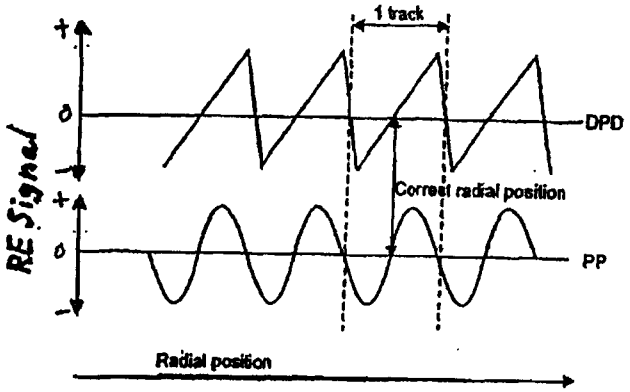




FIG. 4



FIG. 5(A)

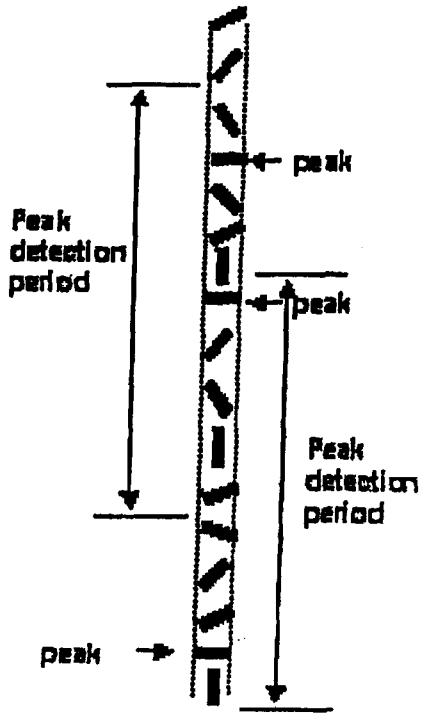


FIG. 5(B)