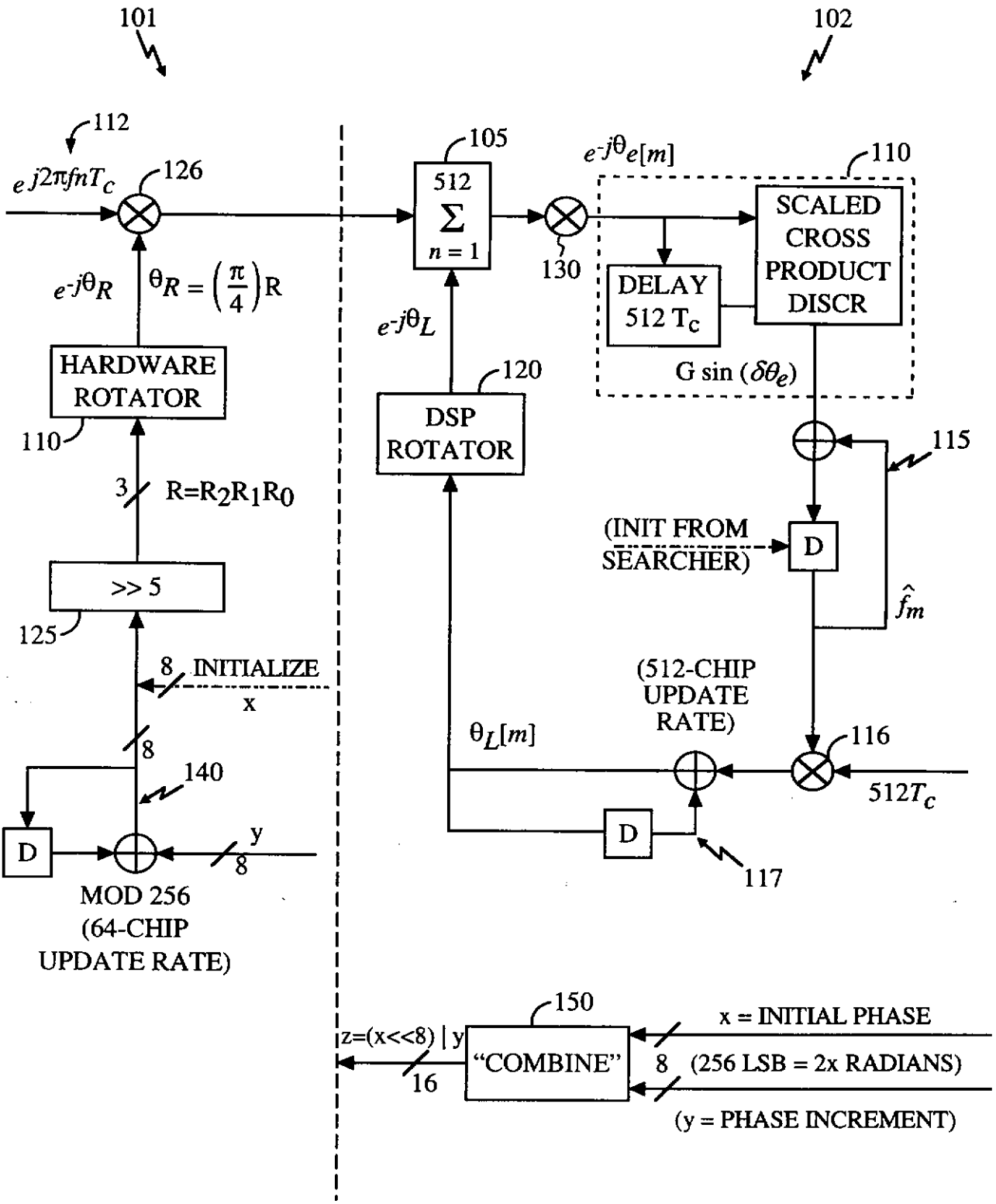

101
102
112
$e^{j2\pi fnT_C}$
126
105
512
Σ
$n=1$
$e^{-j\theta e[m]}$
110
SCALED CROSS PRODUCT DISCR
130
DELAY 512 T_C
G sin ($\delta\theta_e$)
$e^{-j\theta R}$
$\theta_R = \left(\frac{\pi}{4}\right)R$
HARDWARE ROTATOR
110
$e^{-j\theta L}$
120
DSP ROTATOR
115
3
R=$R_2R_1R_0$
(INIT FROM SEARCHER)
D
>> 5
125
$\hat{f}_m$
8
INITIALIZE
x
(512-CHIP UPDATE RATE)
$\theta_L[m]$
116
$512T_C$
8
140
D
y
8
MOD 256
(64-CHIP
UPDATE RATE)
D
117
150
z=(x<<8) | y
16
"COMBINE"
x = INITIAL PHASE
8
(256 LSB = 2x RADIANS)
(y = PHASE INCREMENT)

FIG. 1

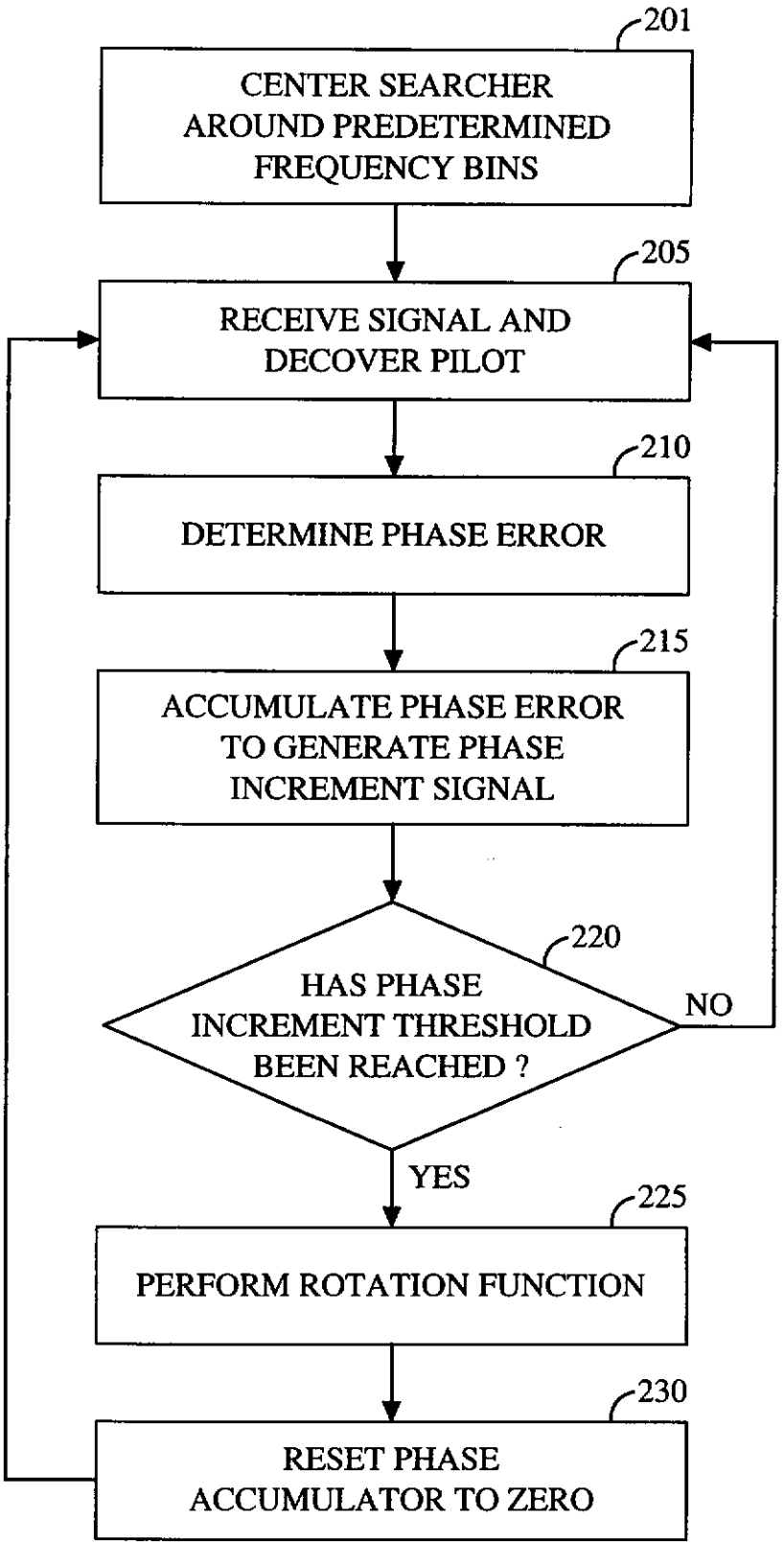

201
CENTER SEARCHER AROUND PREDETERMINED FREQUENCY BINS
205
RECEIVE SIGNAL AND DECOVER PILOT
210
DETERMINE PHASE ERROR
215
ACCUMULATE PHASE ERROR TO GENERATE PHASE INCREMENT SIGNAL
220
HAS PHASE INCREMENT THRESHOLD BEEN REACHED ?
NO
YES
225
PERFORM ROTATION FUNCTION
230
RESET PHASE ACCUMULATOR TO ZERO

FIG. 2

	2-BIN 45°-ROTATOR θ (L)	3-BIN 45°-ROTATOR θ (L)
Fd = +/- 400 Hz	3 (682.6)	5 (409.6)
Fd = +/- 800 Hz	6 (341.3)	8 (256)
Fd = +/- 1200 Hz	3 (256)	11 (186.2)

FIG. 3

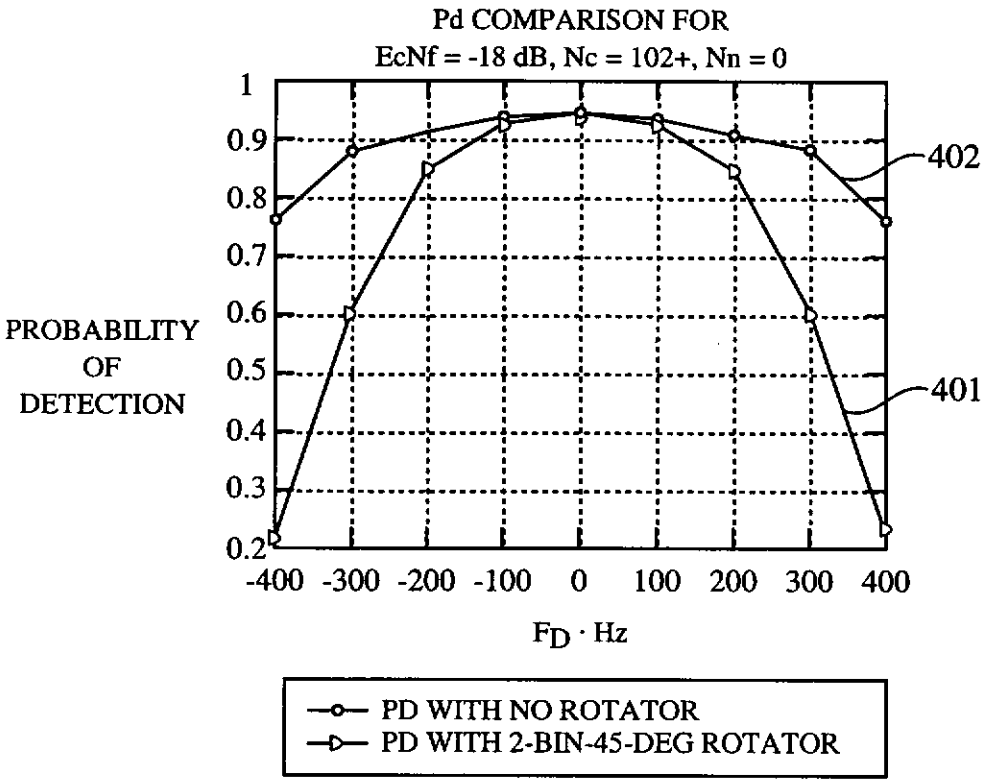


FIG. 4

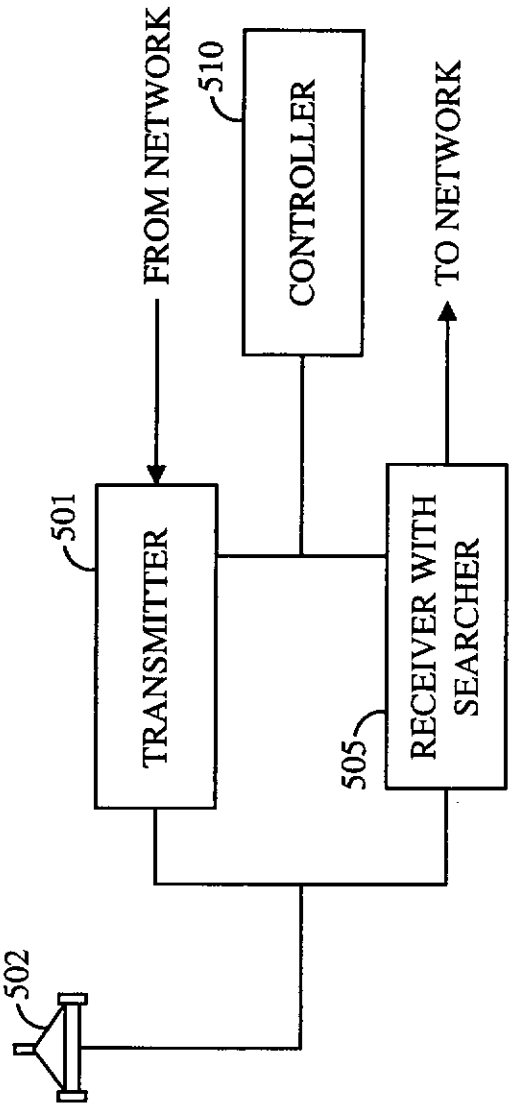

FROM NETWORK
510
CONTROLLER
TO NETWORK
501
TRANSMITTER
RECEIVER WITH SEARCHER
505
502

FIG. 5