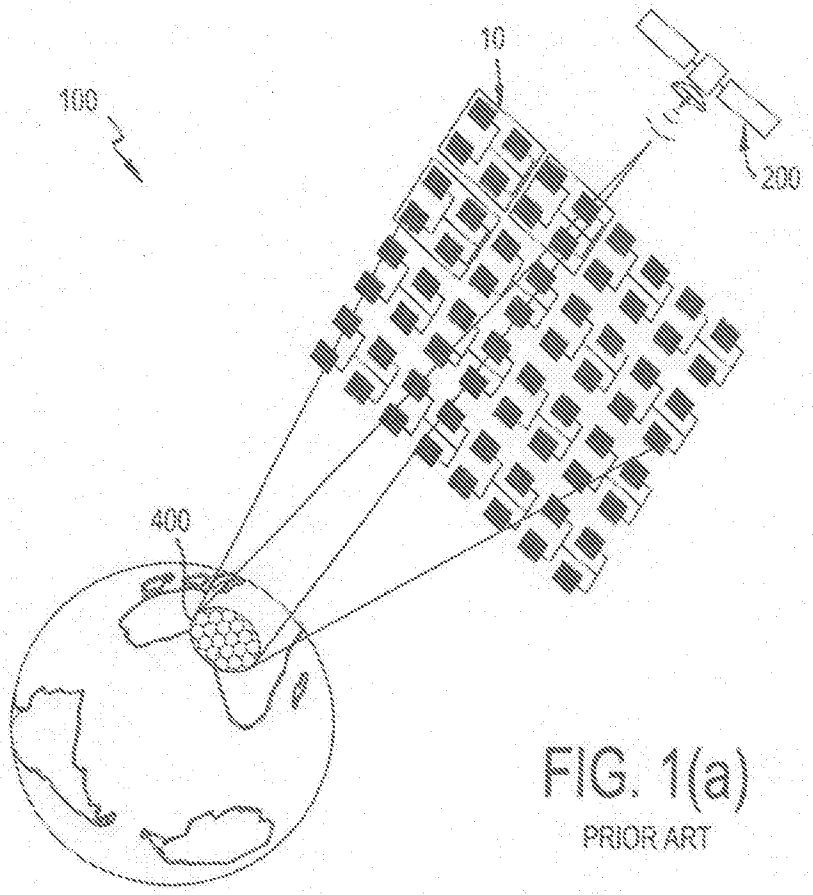



FIG. 1(a)
PRIOR ART

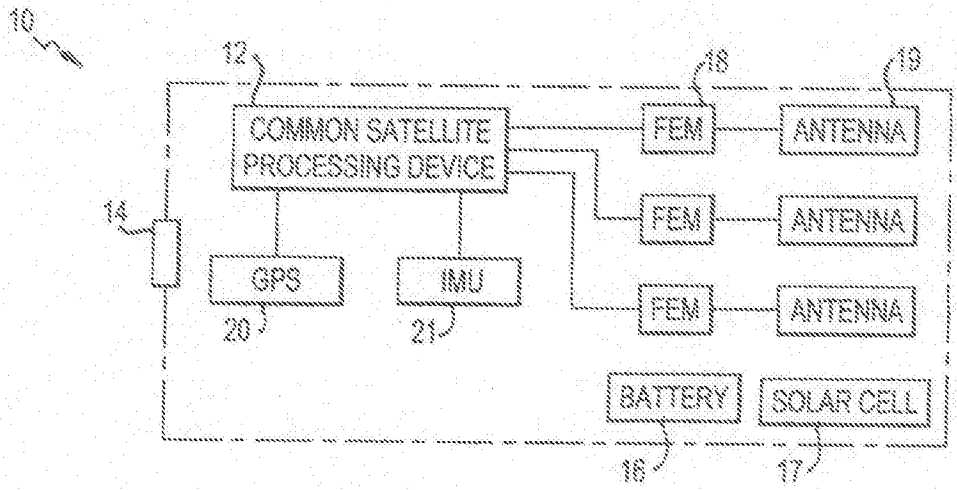



FIG. 2

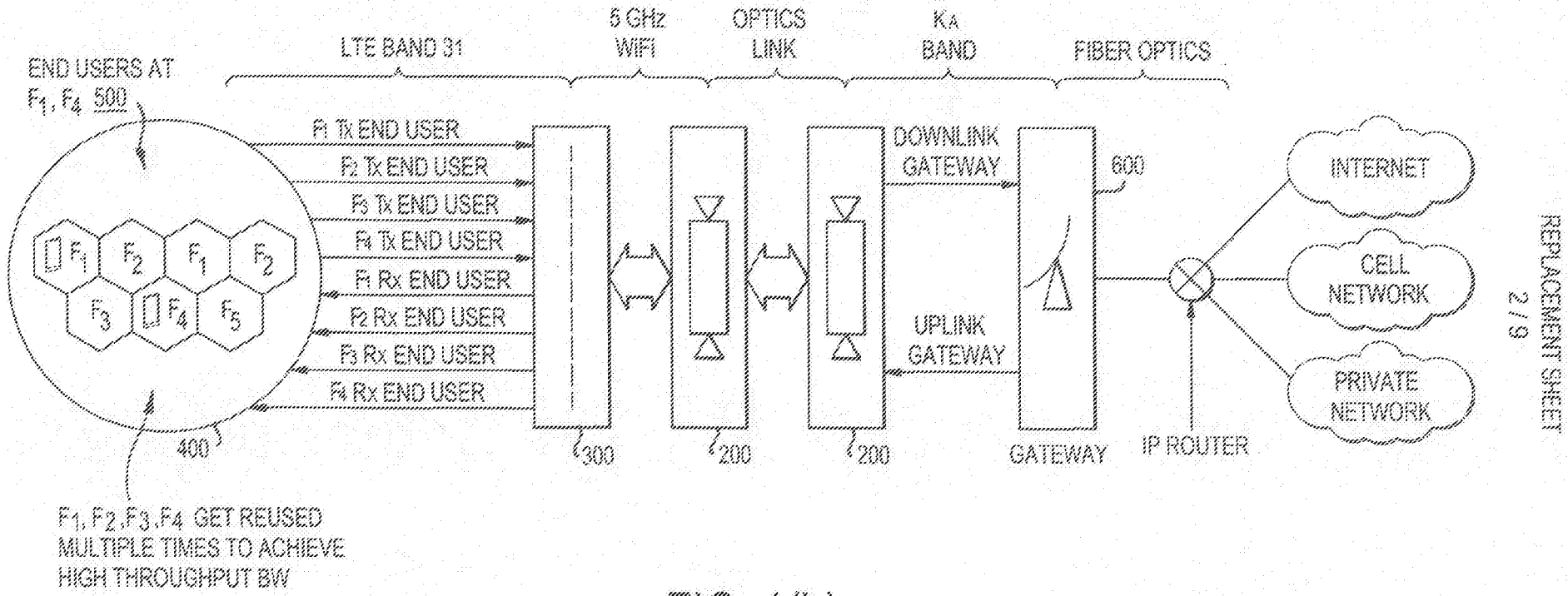



FIG. 1(b)

PRIOR ART

REPLACEMENT SHEET 2 / 9

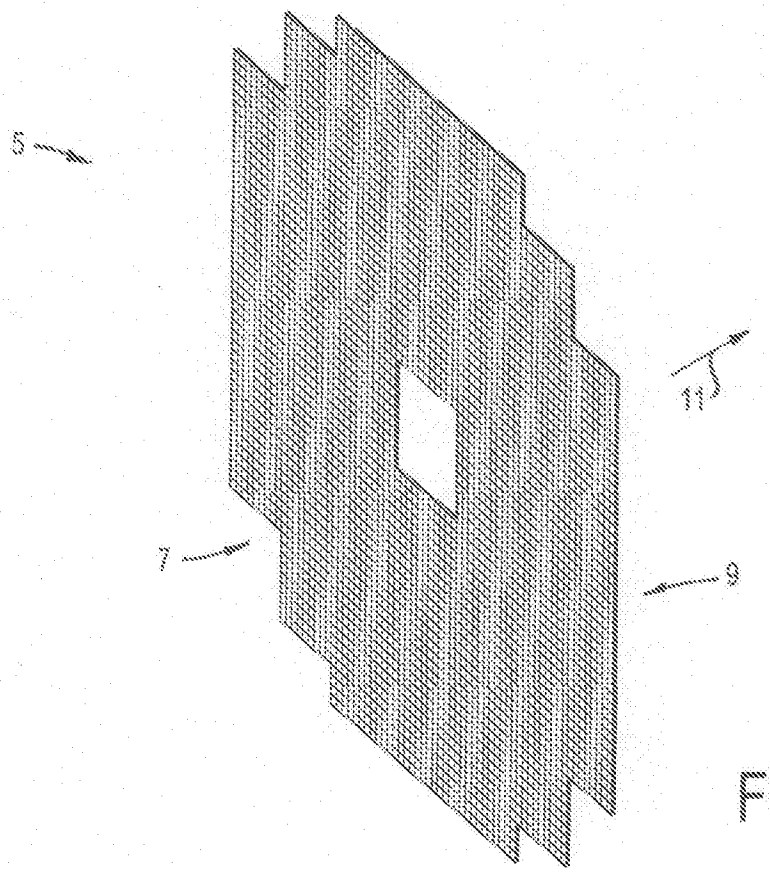
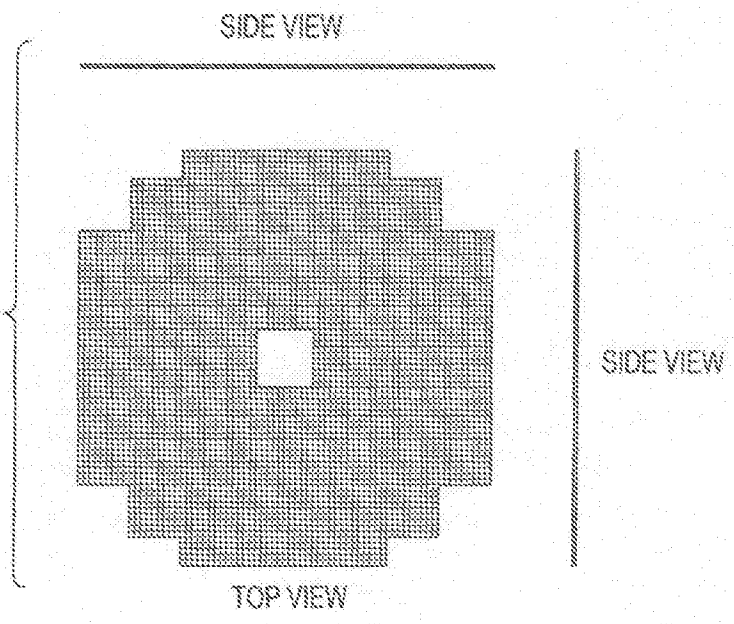



FIG. 3(a)

FIG. 3(b)



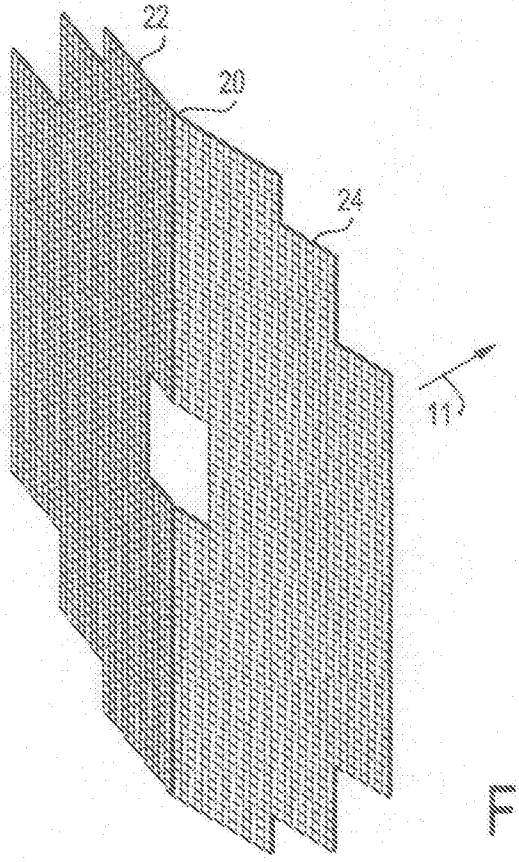



FIG. 4(a)

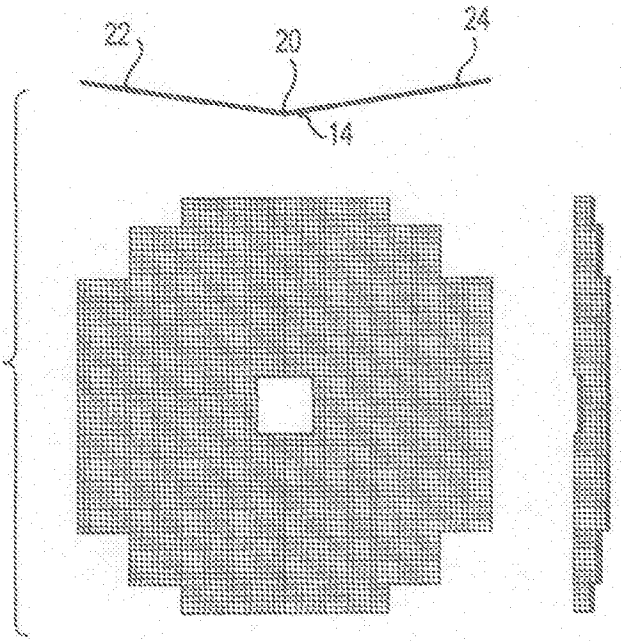



FIG. 4(b)

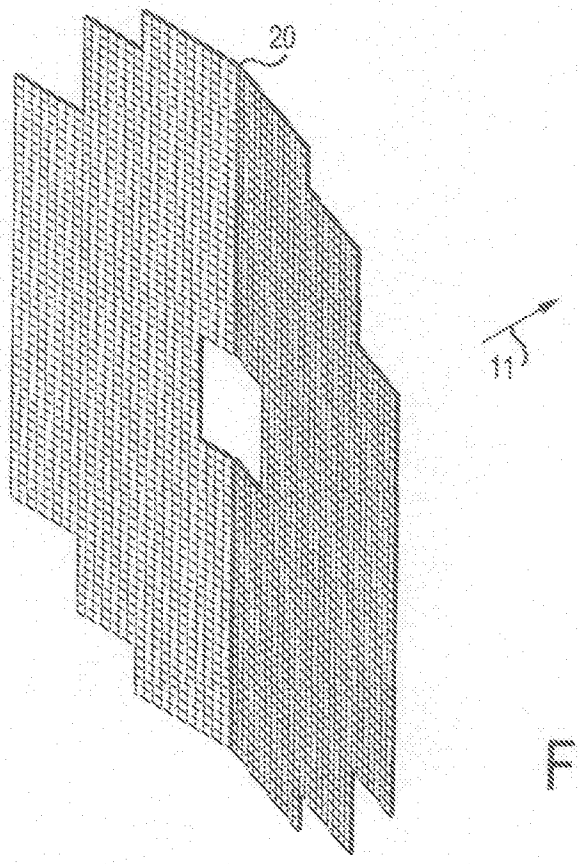



FIG. 5(a)

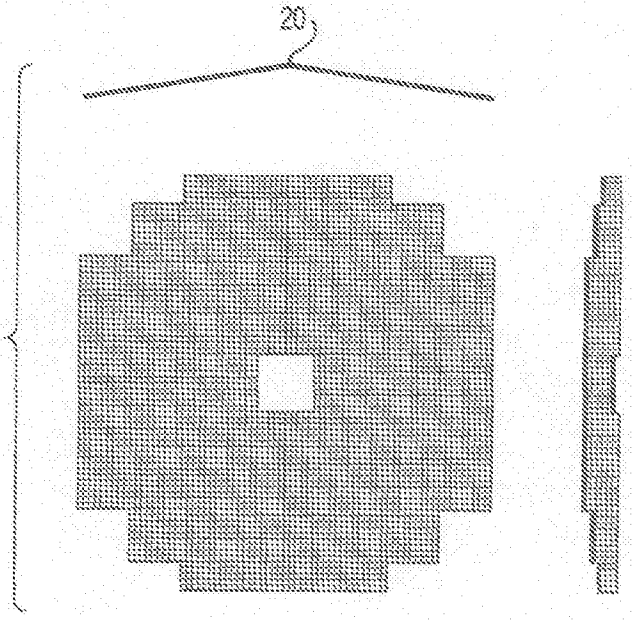



FIG. 5(b)

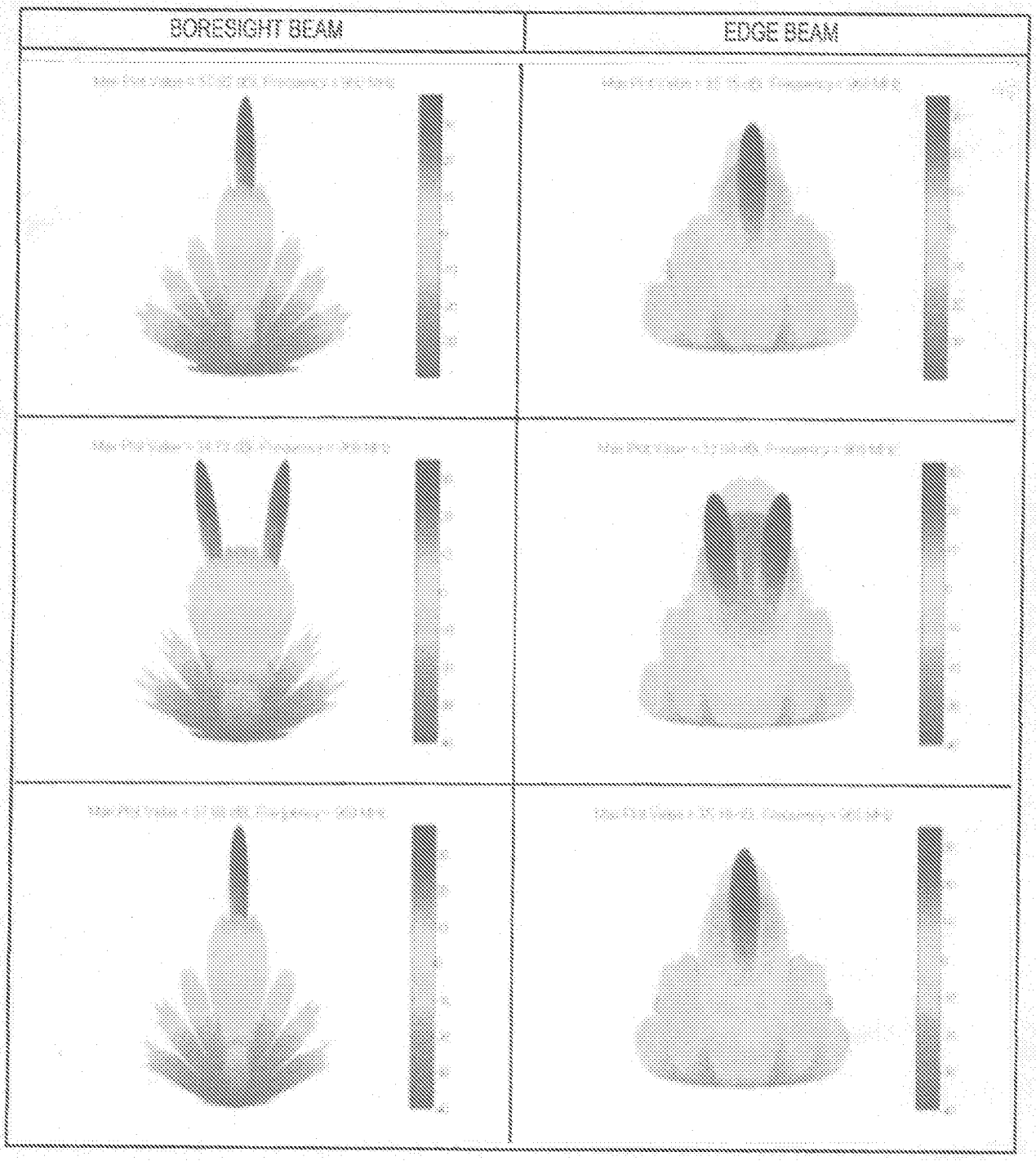
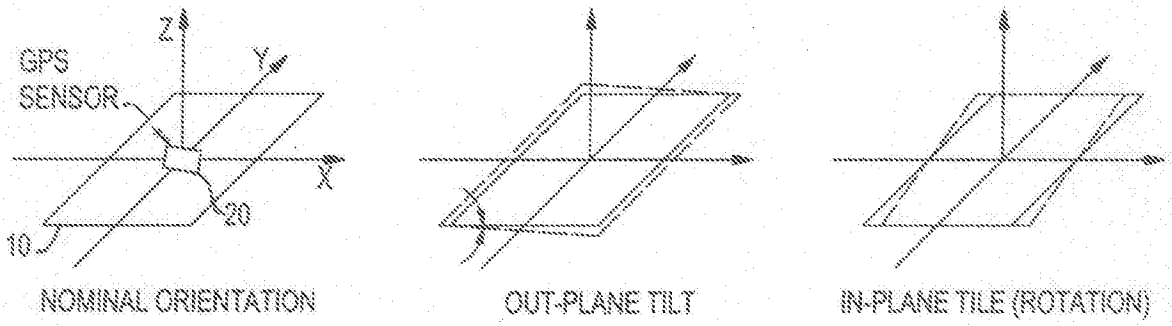



FIG. 6

FIG. 7(a)



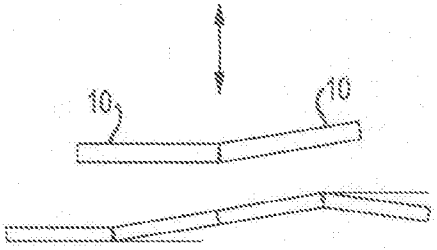




FIG. 7(b)

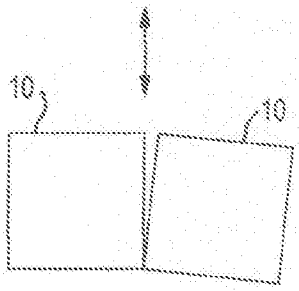
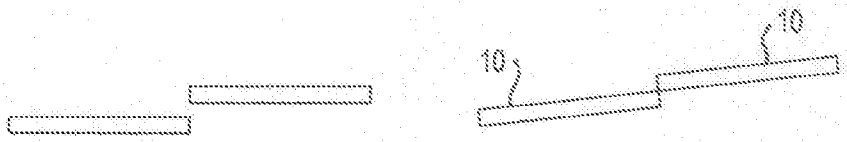


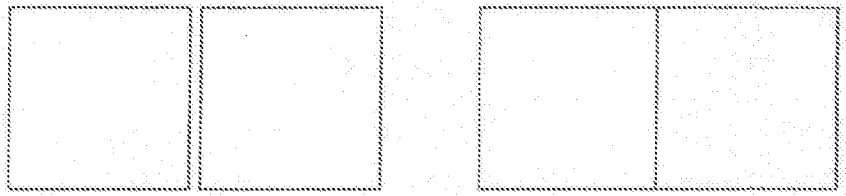

FIG. 7(c)

FIG. 8(a)




OUT-PLANE DISPLACEMENTS

FIG. 8(b)



IN-PLANE DISPLACEMENTS

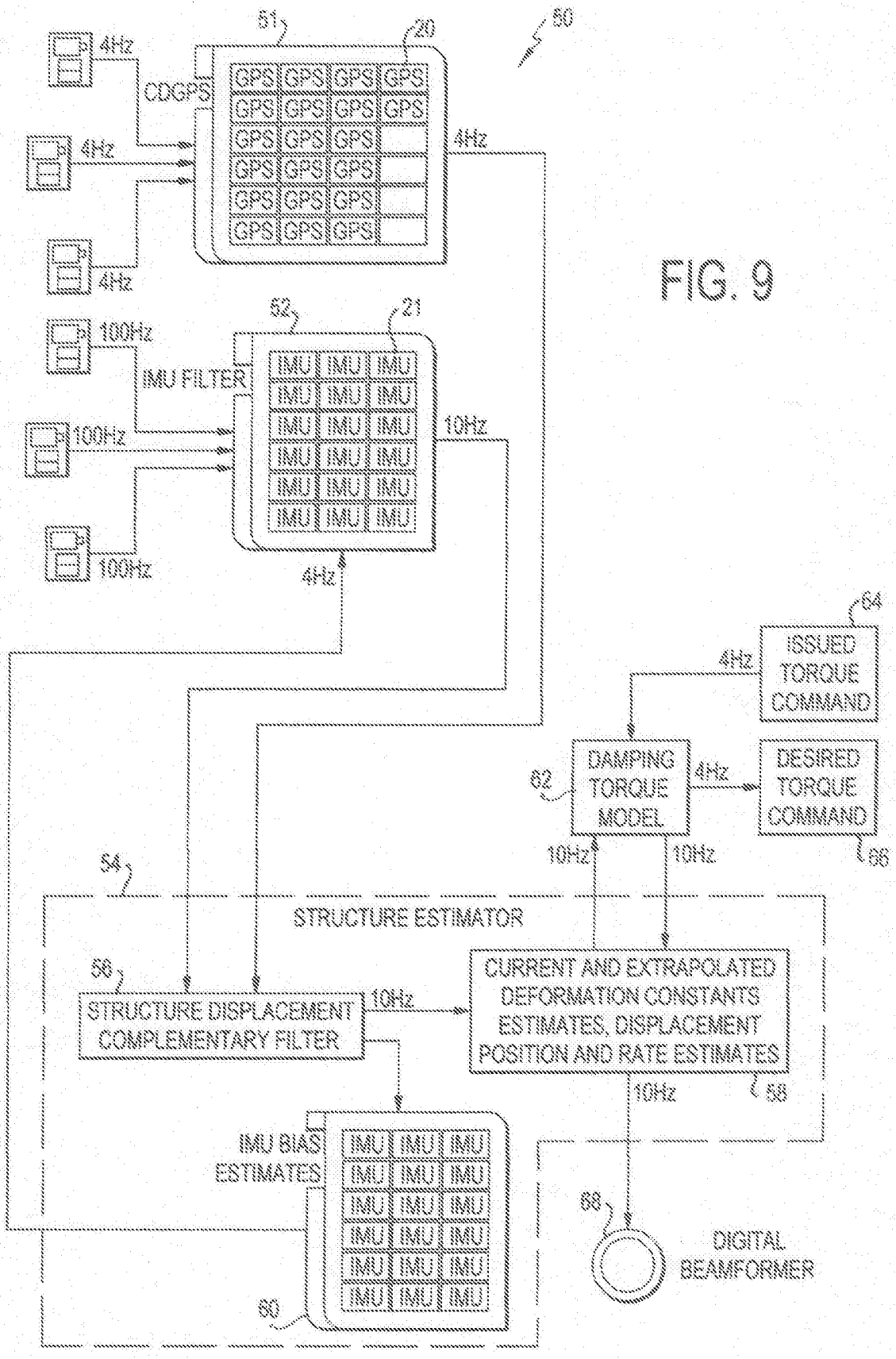

50
51
20
GPS
4Hz
CDGPS
4Hz
4Hz
4Hz
52
21
IMU
100Hz
IMU FILTER
100Hz
100Hz
10Hz
4Hz
64
ISSUED TORQUE COMMAND
4Hz
62
DAMPING TORQUE MODEL
4Hz
DESIRED TORQUE COMMAND
66
10Hz
10Hz
54
STRUCTURE ESTIMATOR
56
STRUCTURE DISPLACEMENT COMPLEMENTARY FILTER
10Hz
CURRENT AND EXTRAPOLATED DEFORMATION CONSTANTS ESTIMATES, DISPLACEMENT POSITION AND RATE ESTIMATES
10Hz
58
IMU BIAS ESTIMATES
60
68
DIGITAL BEAMFORMER

FIG. 9

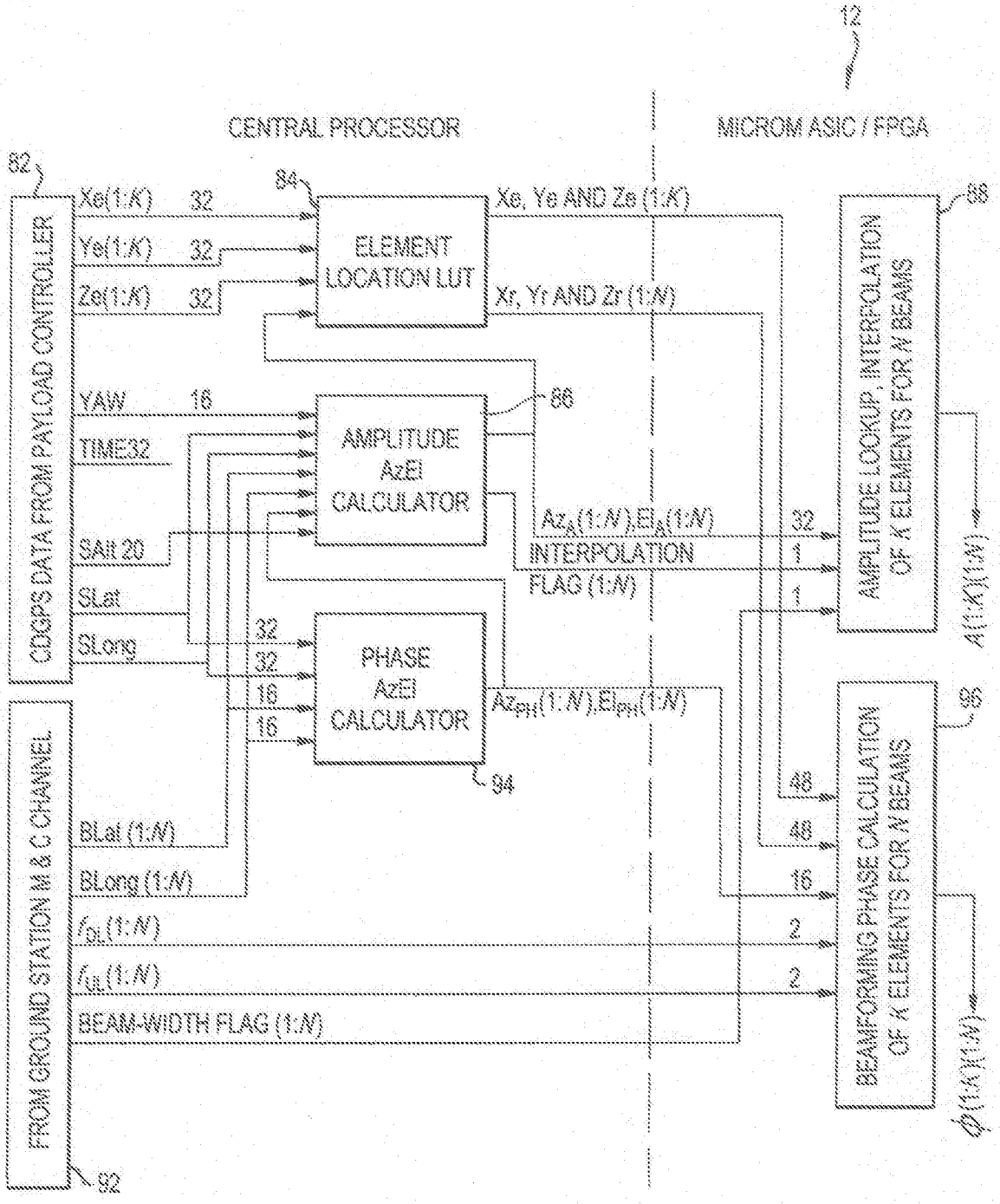

12
CENTRAL PROCESSOR
MICROM ASIC / FPGA
82
COOPS DATA FROM PAYLOAD CONTROLLER
Xe(1:K) 32
Ye(1:K) 32
Ze(1:K) 32
84
ELEMENT LOCATION LUT
Xe, Ye AND Ze (1:K)
Xr, Yr AND Zr (1:N)
88
AMPLITUDE LOCKUP, INTERPOLATION OF K ELEMENTS FOR N BEAMS
A(1:K)(1:N)
YAW 16
TIME32
SAlt 20
SLat
SLong
86
AMPLITUDE AzEl CALCULATOR
AzR(1:N),ElR(1:N) 32
INTERPOLATION FLAG (1:N) 1
1
32
32
16
16
PHASE AzEl CALCULATOR
94
AzPH(1:N),ElPH(1:N)
96
BEAMFORMING PHASE CALCULATION OF K ELEMENTS FOR N BEAMS
48
48
16
2
2
FROM GROUND STATION M & C CHANNEL
BLat (1:N)
BLong (1:N)
fDL(1:N)
fUL(1:N)
BEAM-WIDTH FLAG (1:N)
92
ϕ(1:K)(1:N)

FIG. 10