

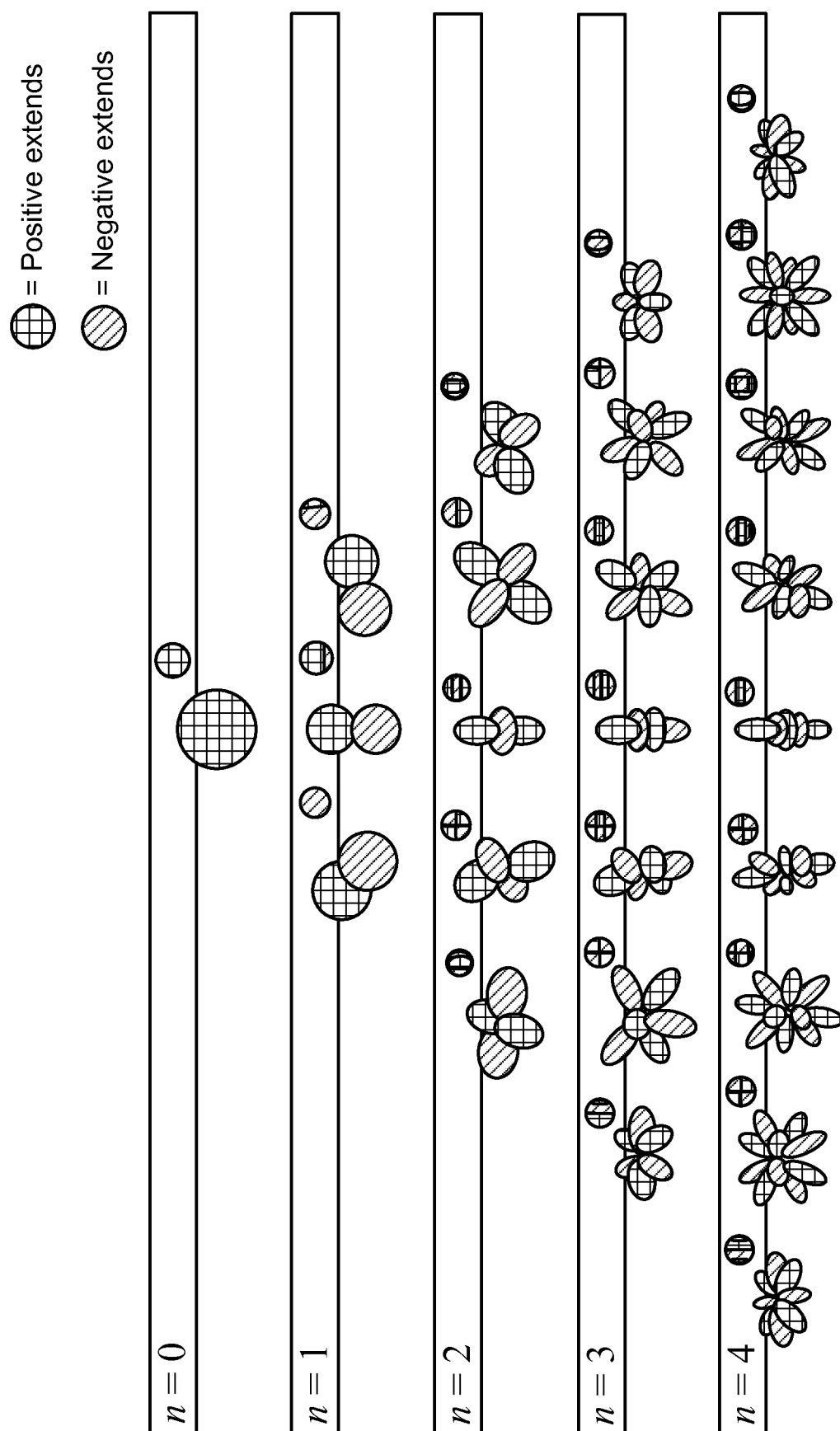


FIG. 1

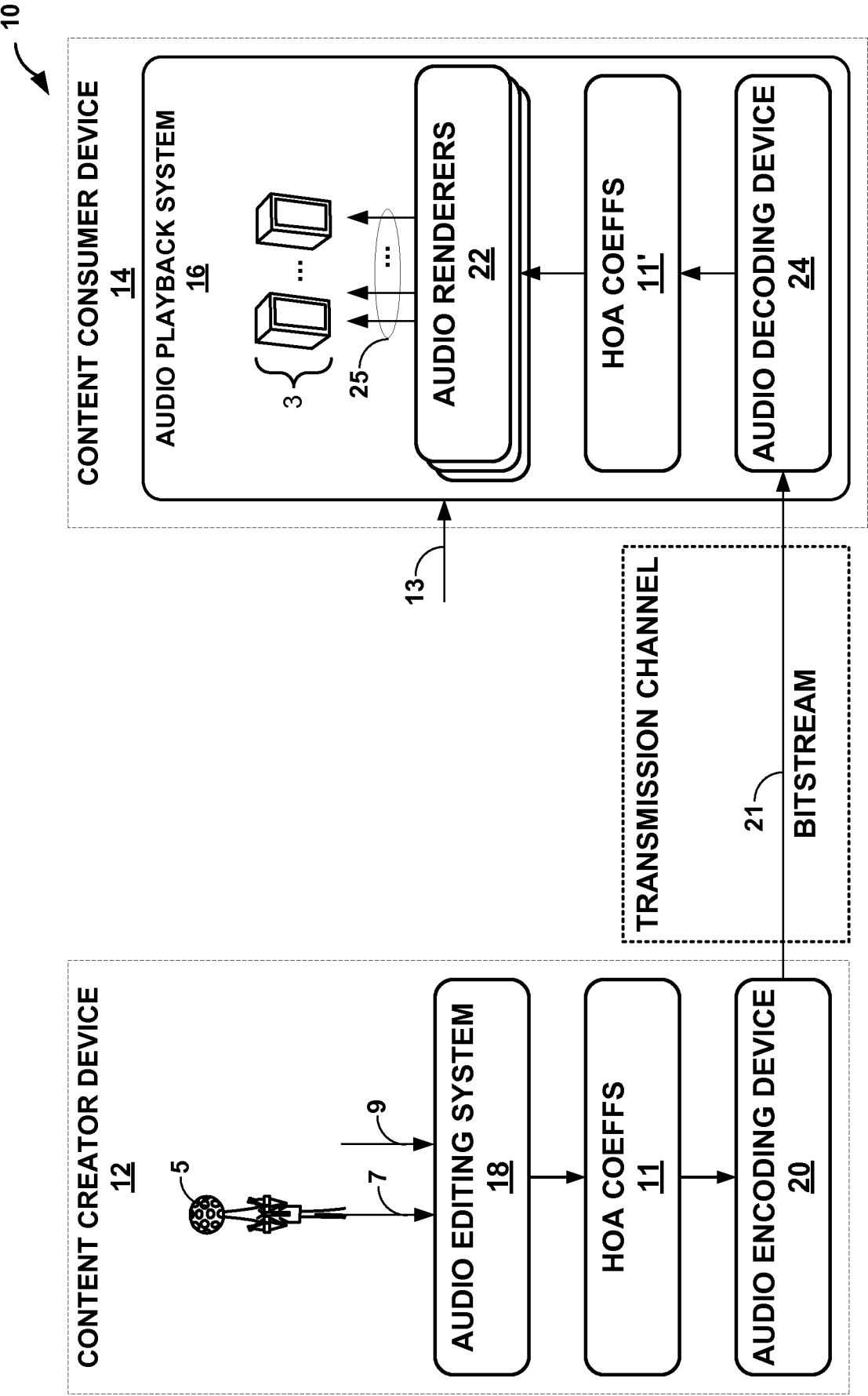


FIG. 2

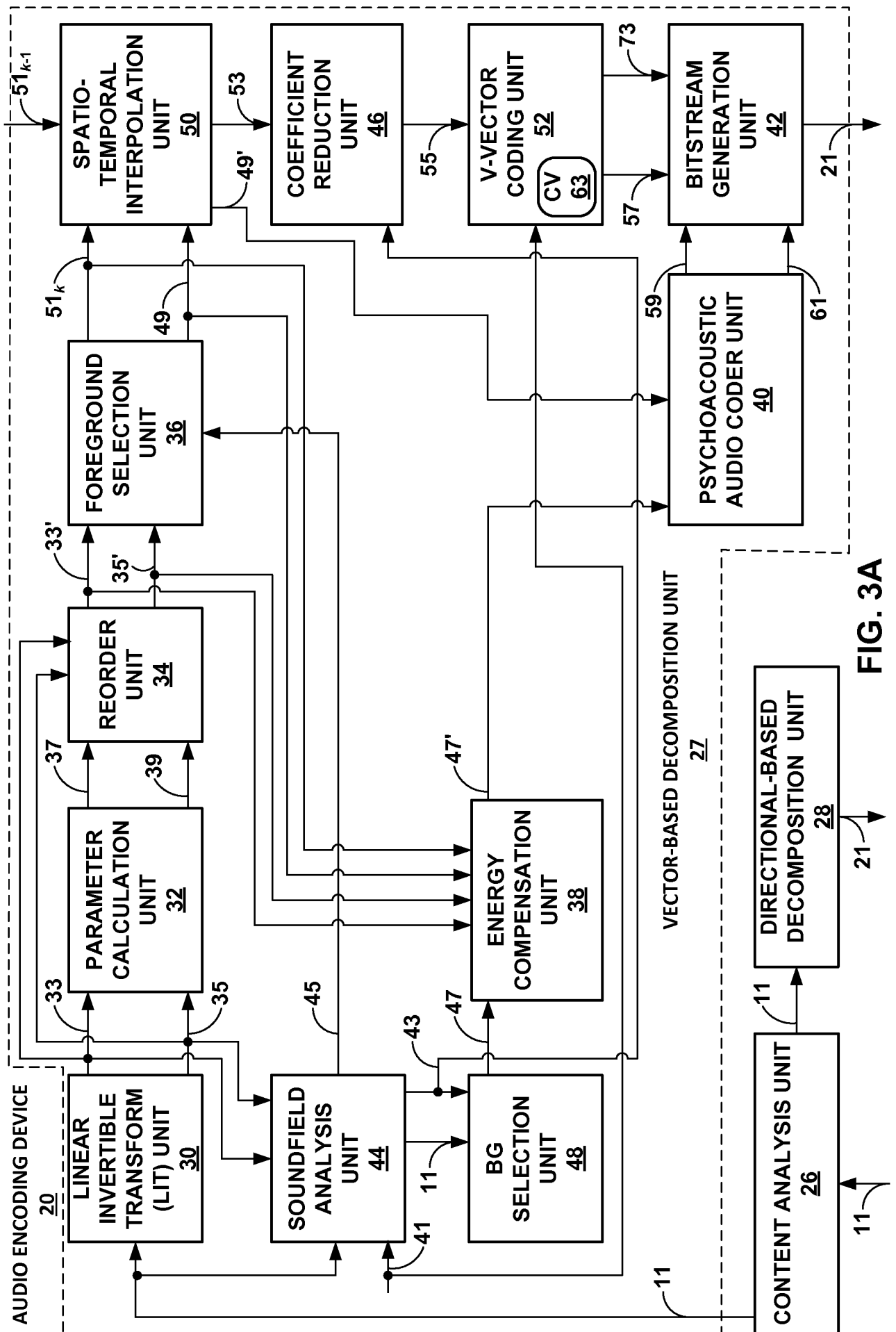


FIG. 3A

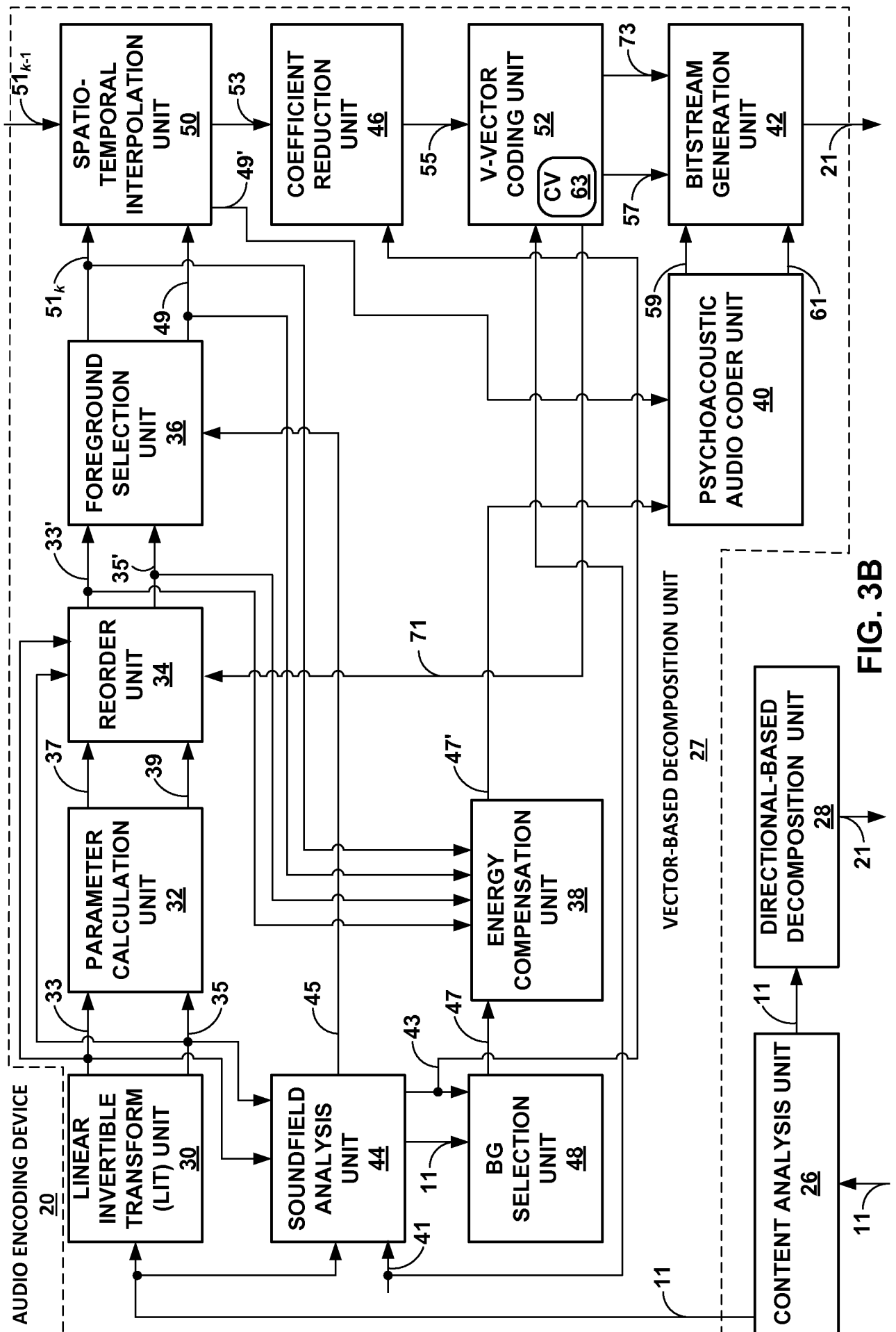


FIG. 3B

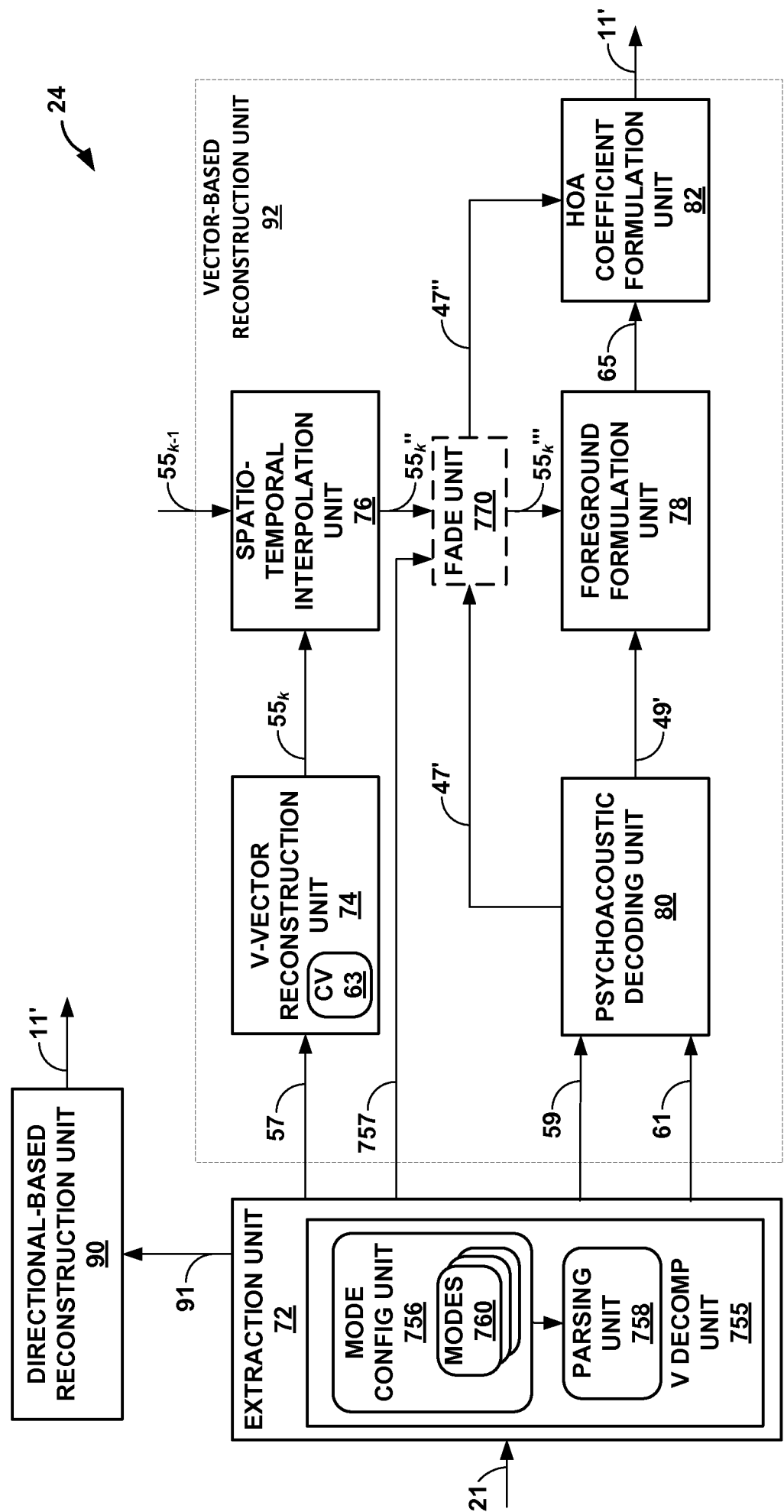


FIG. 4A

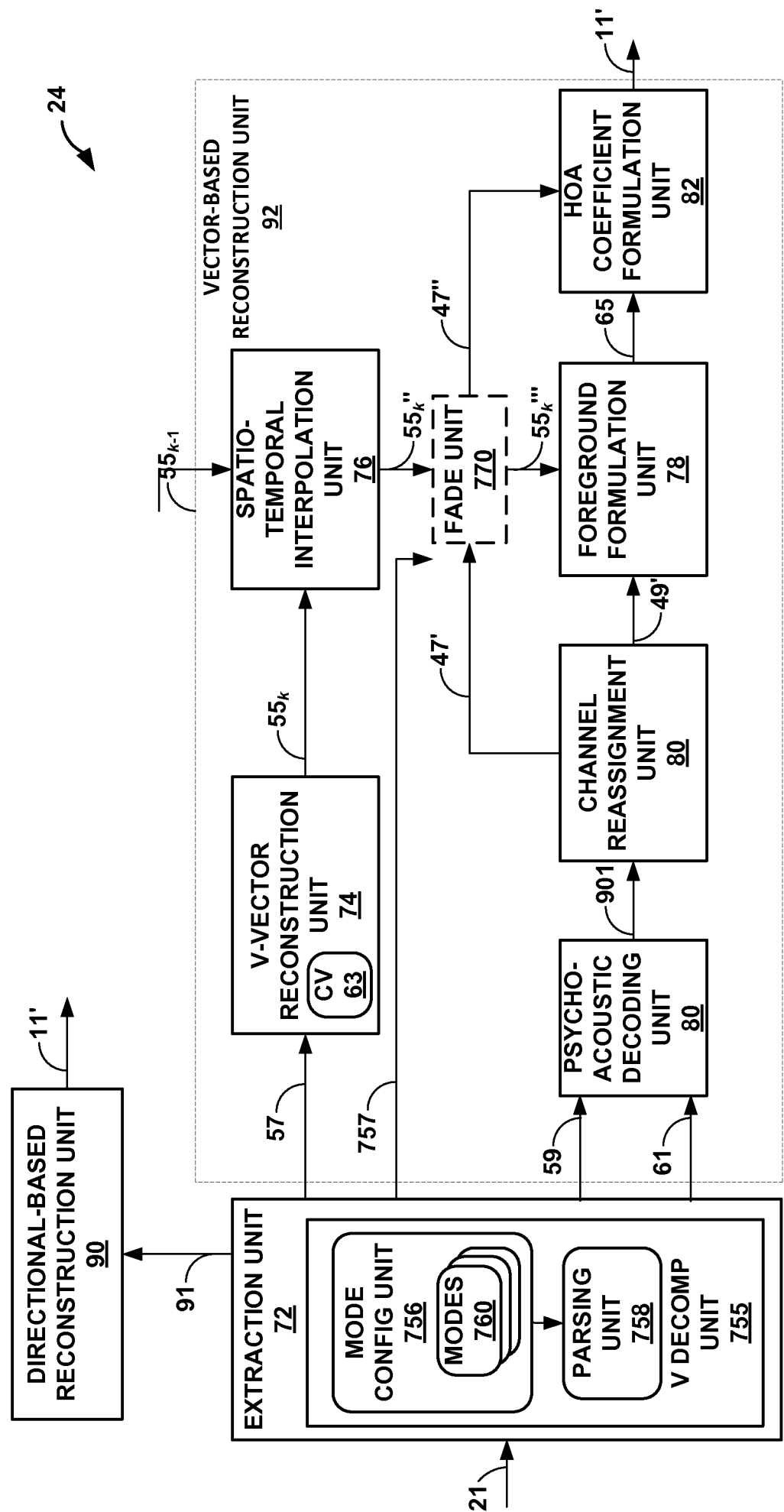


FIG. 4B

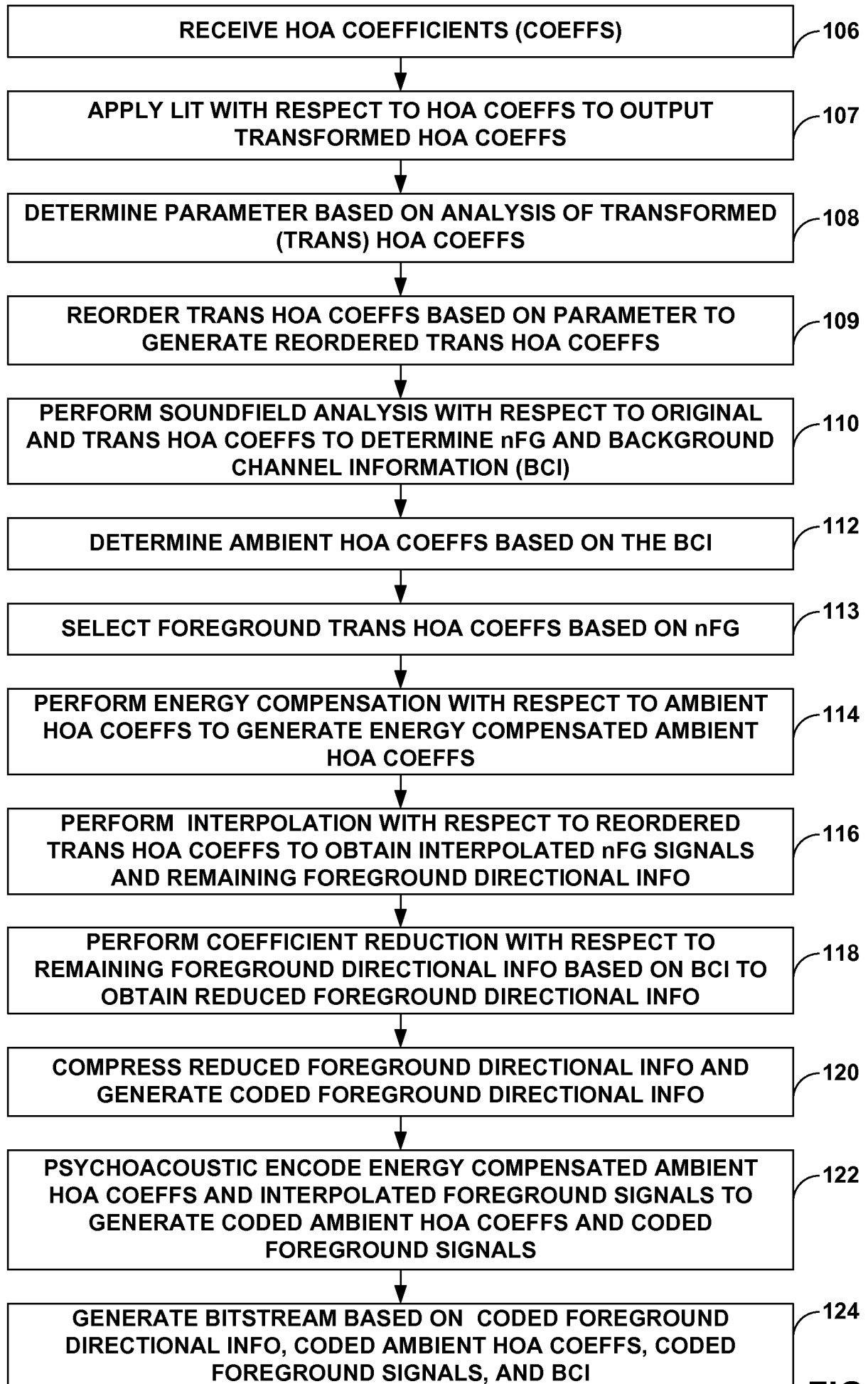


FIG. 5

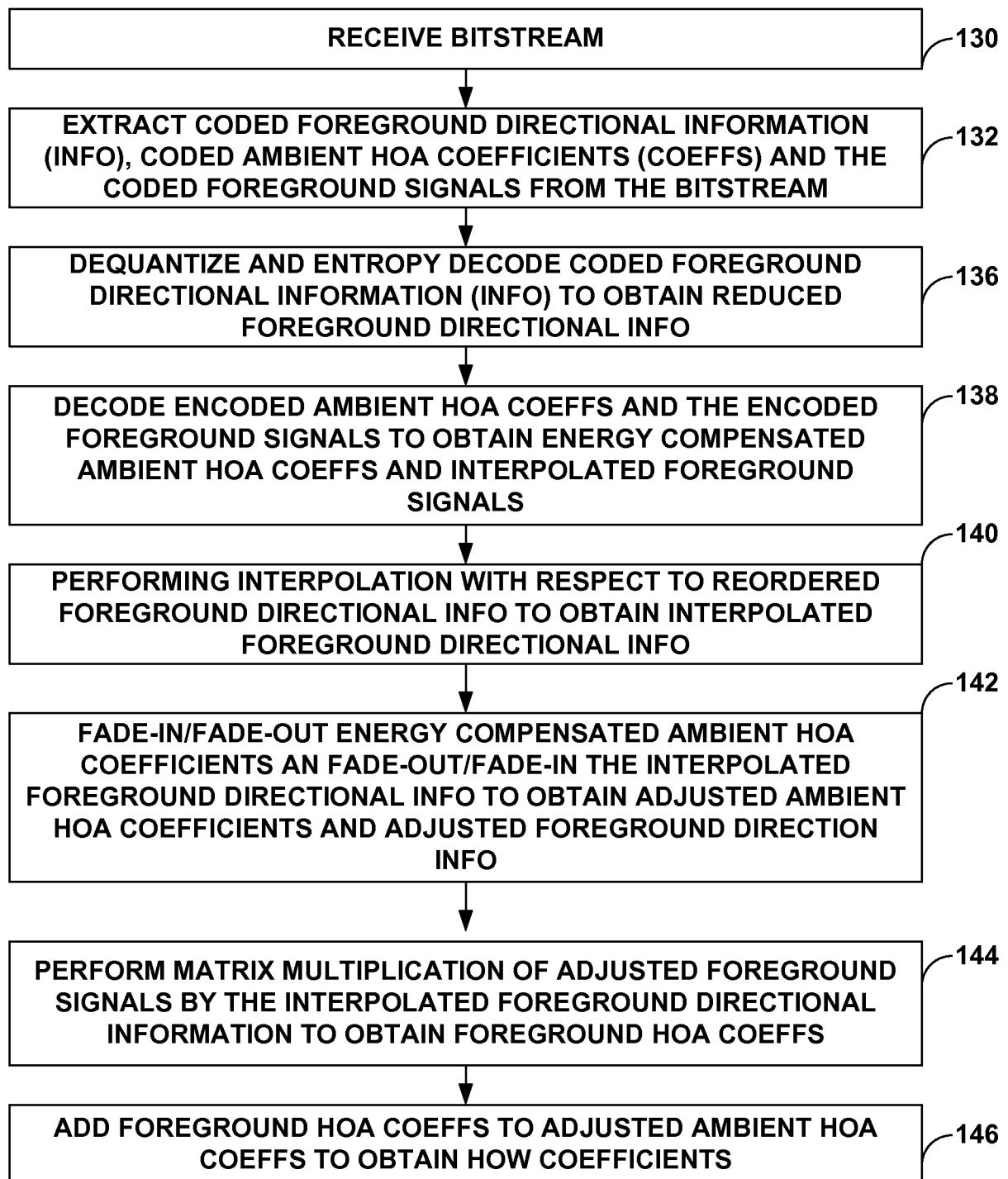


FIG. 6

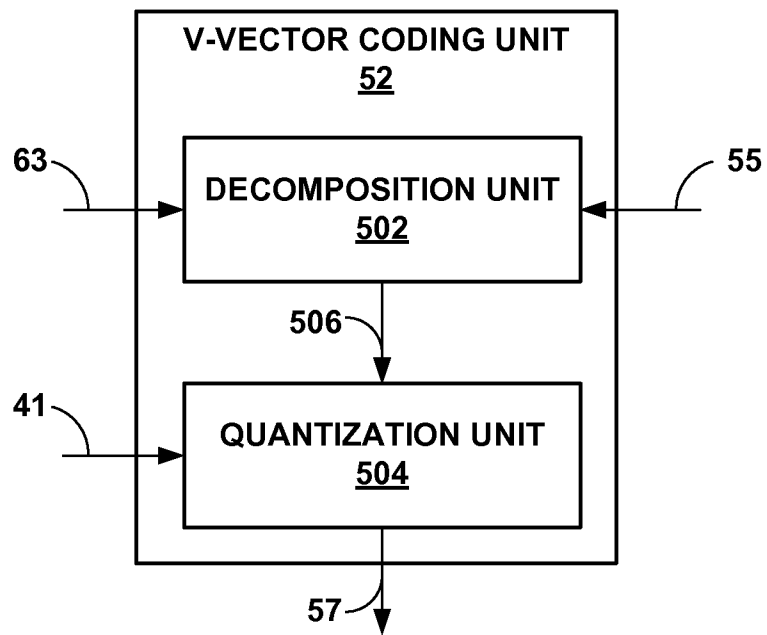


FIG. 7

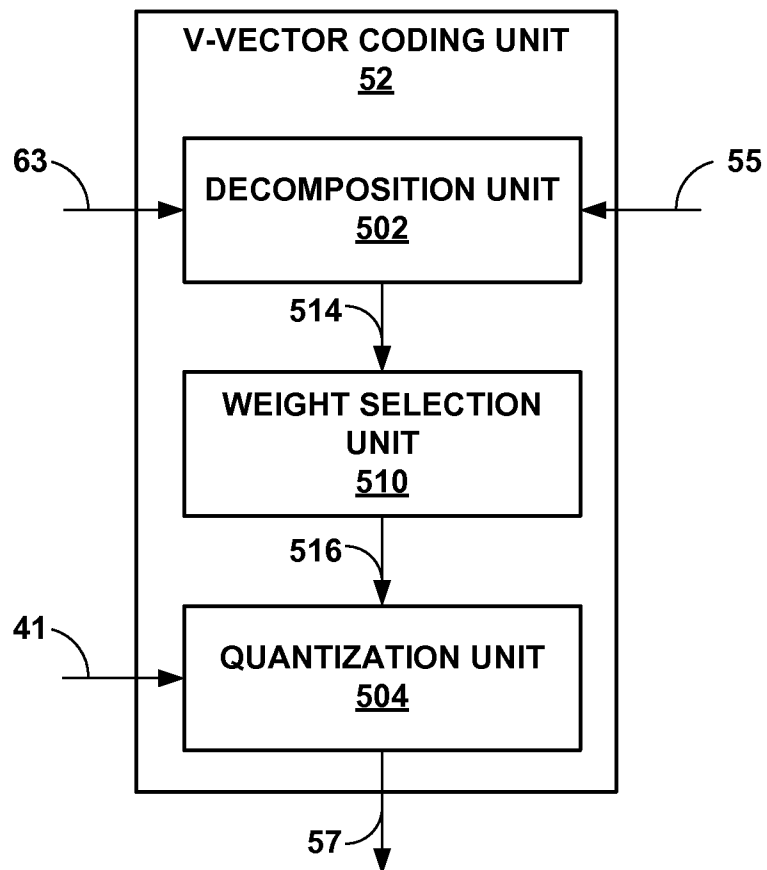


FIG. 8

Original V_{FG}

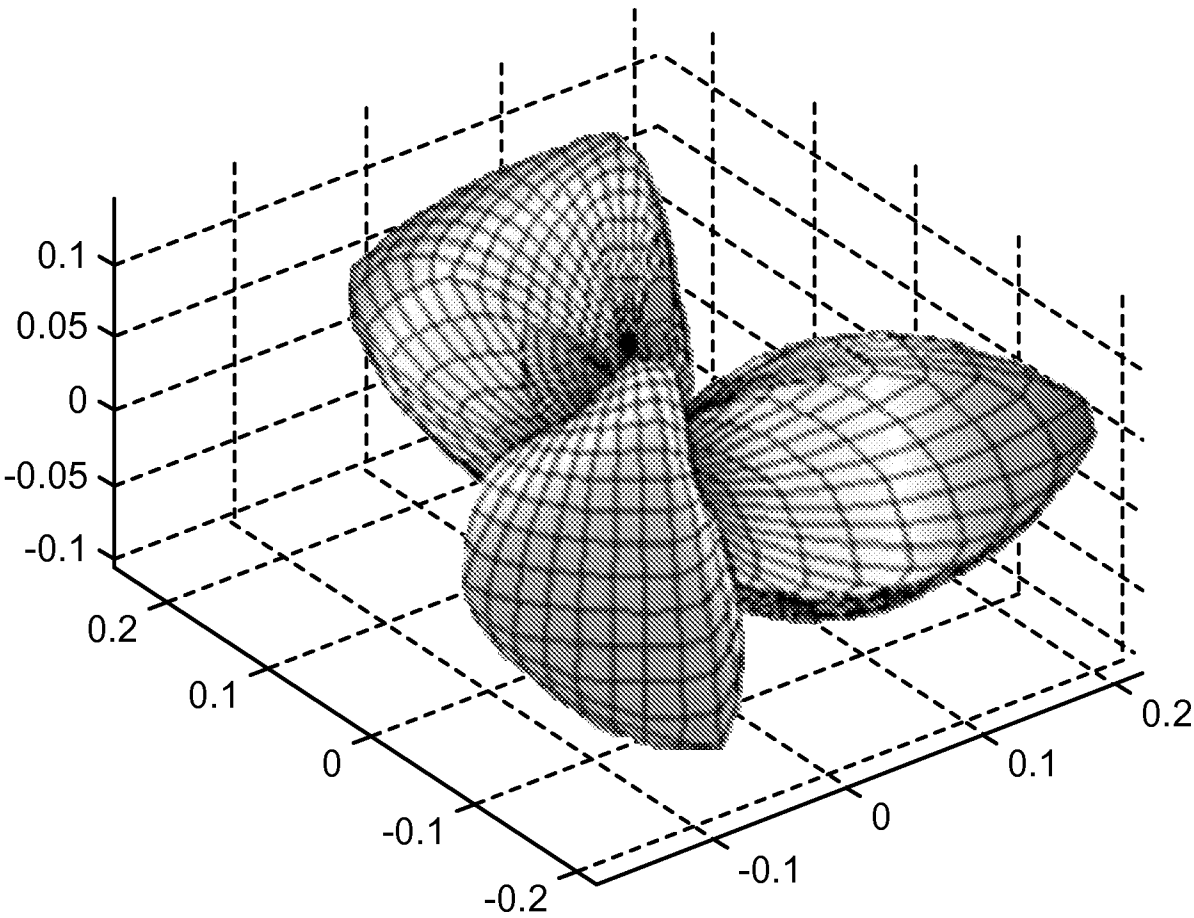


FIG. 9

25th order model $\sum_{j=1}^{25} \omega_j \Omega_j$

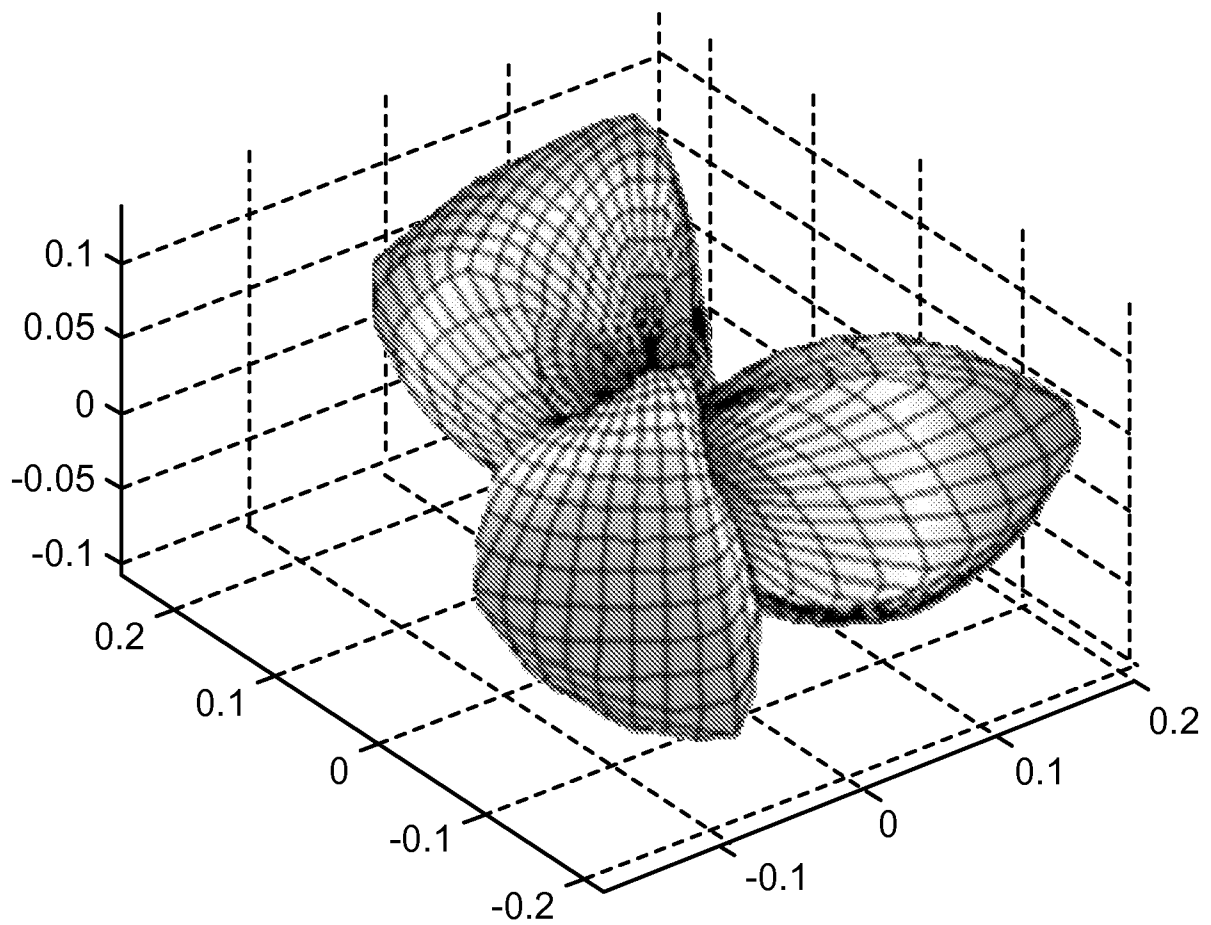
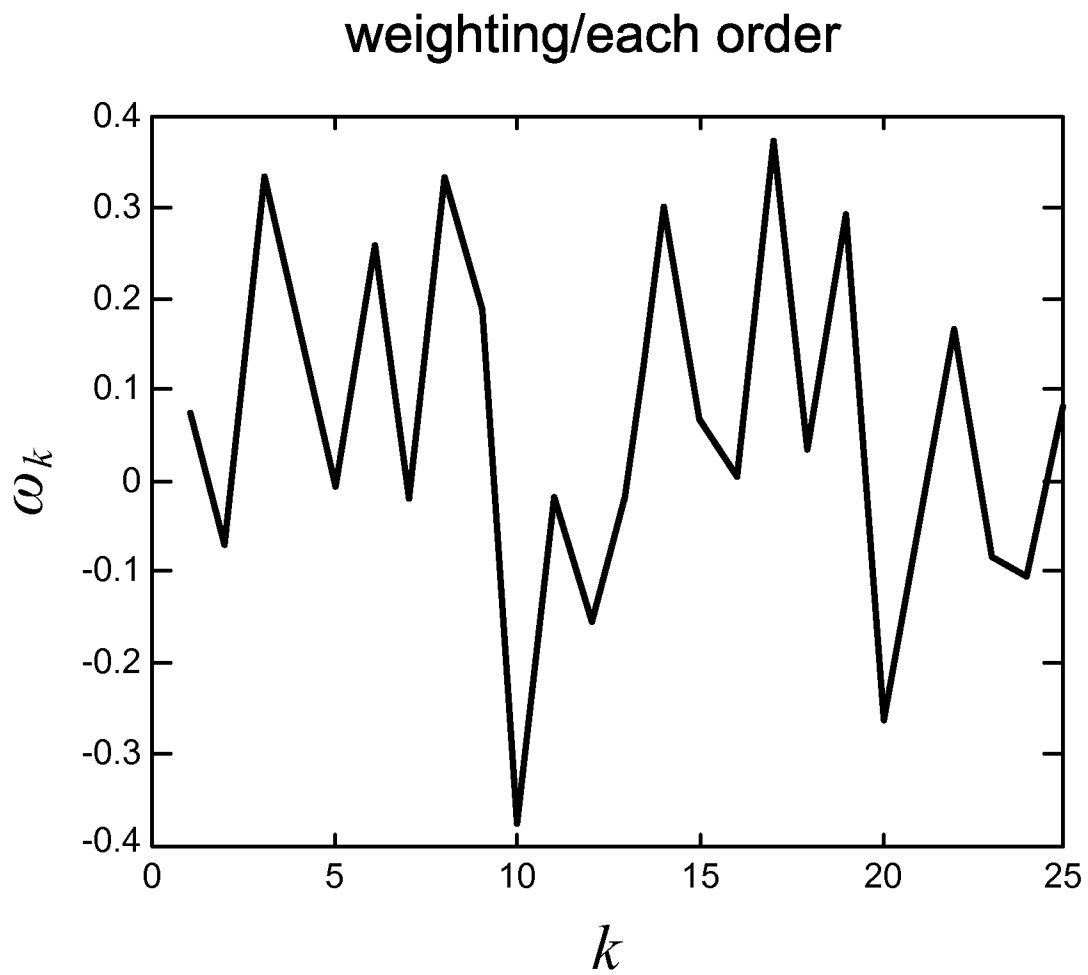


FIG. 10

**FIG. 11**

5th order model $\sum_{j=1}^5 \hat{\omega}_j \Omega_j$

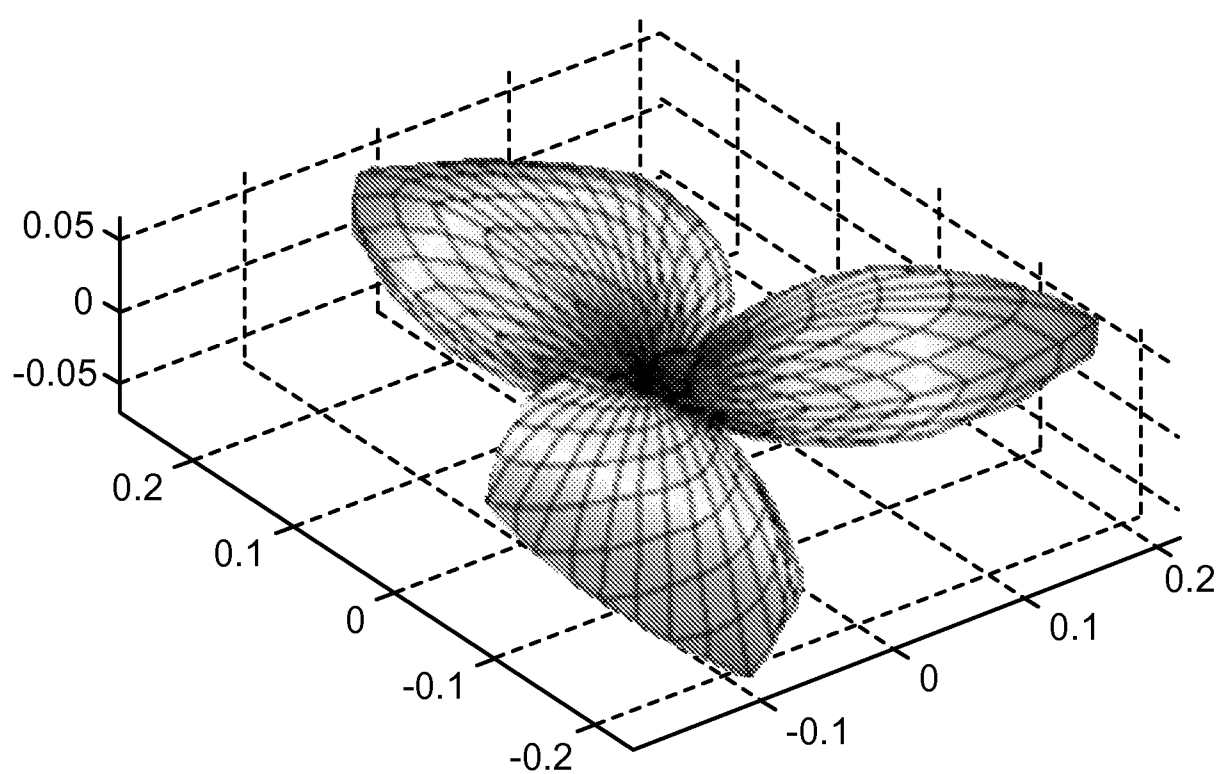


FIG. 12

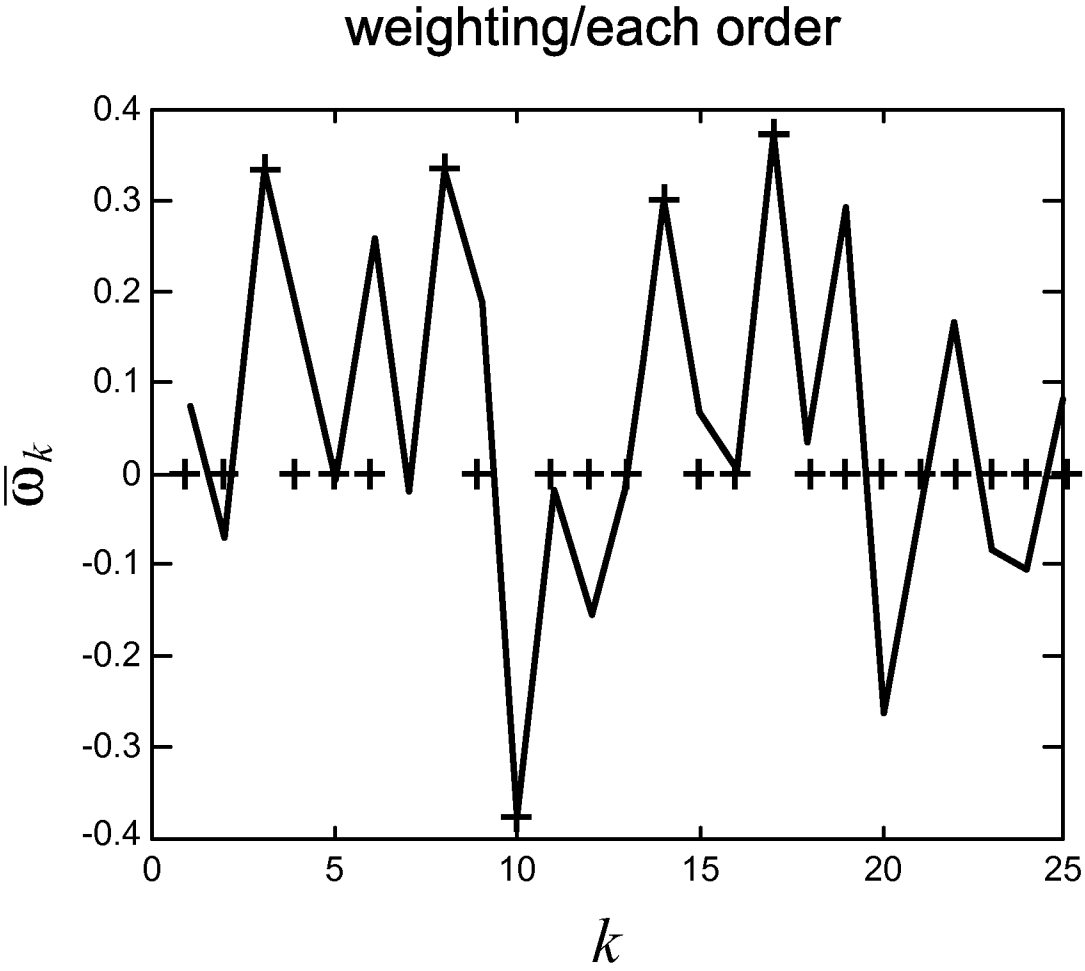


FIG. 13

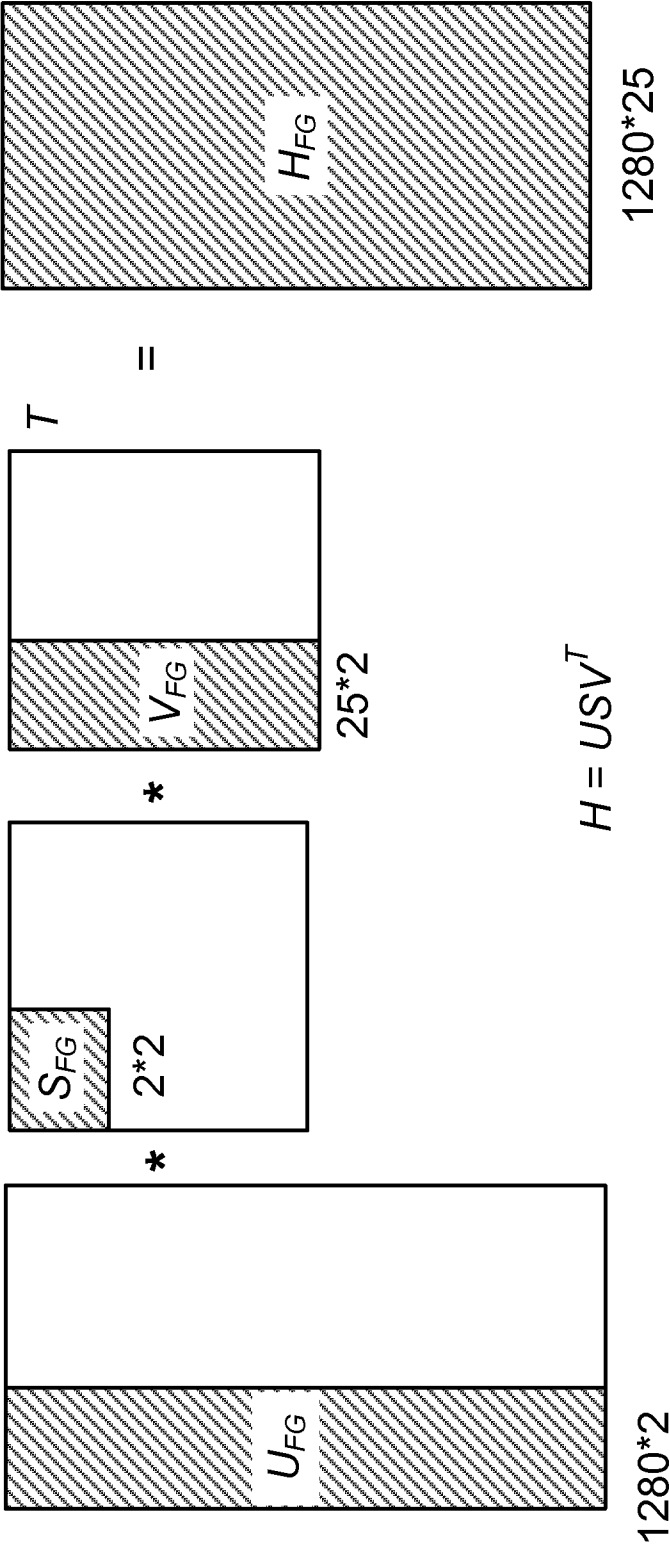


FIG. 14

Test Item #	Test Items	Bits/frame	Bit rate (kbps)	Other method
(6 bit - HOA selection + 8 bit - weighting Quant)* 2 vectors = 28				
1	H_01_SynthBumbleBee		1.40	30.46
2	H_02_Drums1	$(5 + 8) * 5 = 65$	3.25	21.89
3	H_03_Modern	$(5 + 8) * 2 = 26$	1.30	19.35
4	H_04_Stadium2	$(5 + 8) * 5 = 65$	3.25	14.70
5	H_05_Water	$(5 + 8) * 5 = 65$	3.25	14.73
6	H_06_Helicopter	$(5 + 8) * 5 = 65$	3.25	14.76
7	H_07_Vocal1	$(5 + 8) * 5 = 65$	3.25	14.86
8	H_08_BeginningOfAConcert	$(5 + 8) * 2 = 26$	1.30	14.71
9	H_09_ModernElectronicMusic	$(5 + 8) * 5 = 65$	1.30	10.83
10	H_10_Orchestra2	$(5 + 8) * 5 = 65$	3.25	14.82
11	H_11_ShoutingAudience	$(5 + 8) * 5 = 65$	3.25	14.78
12	H_12_Radio2	$(4 + 8) * 5 = 60$	3.00	9.15
Average		55	2.75 kbps	16.25 kbps

FIG. 15

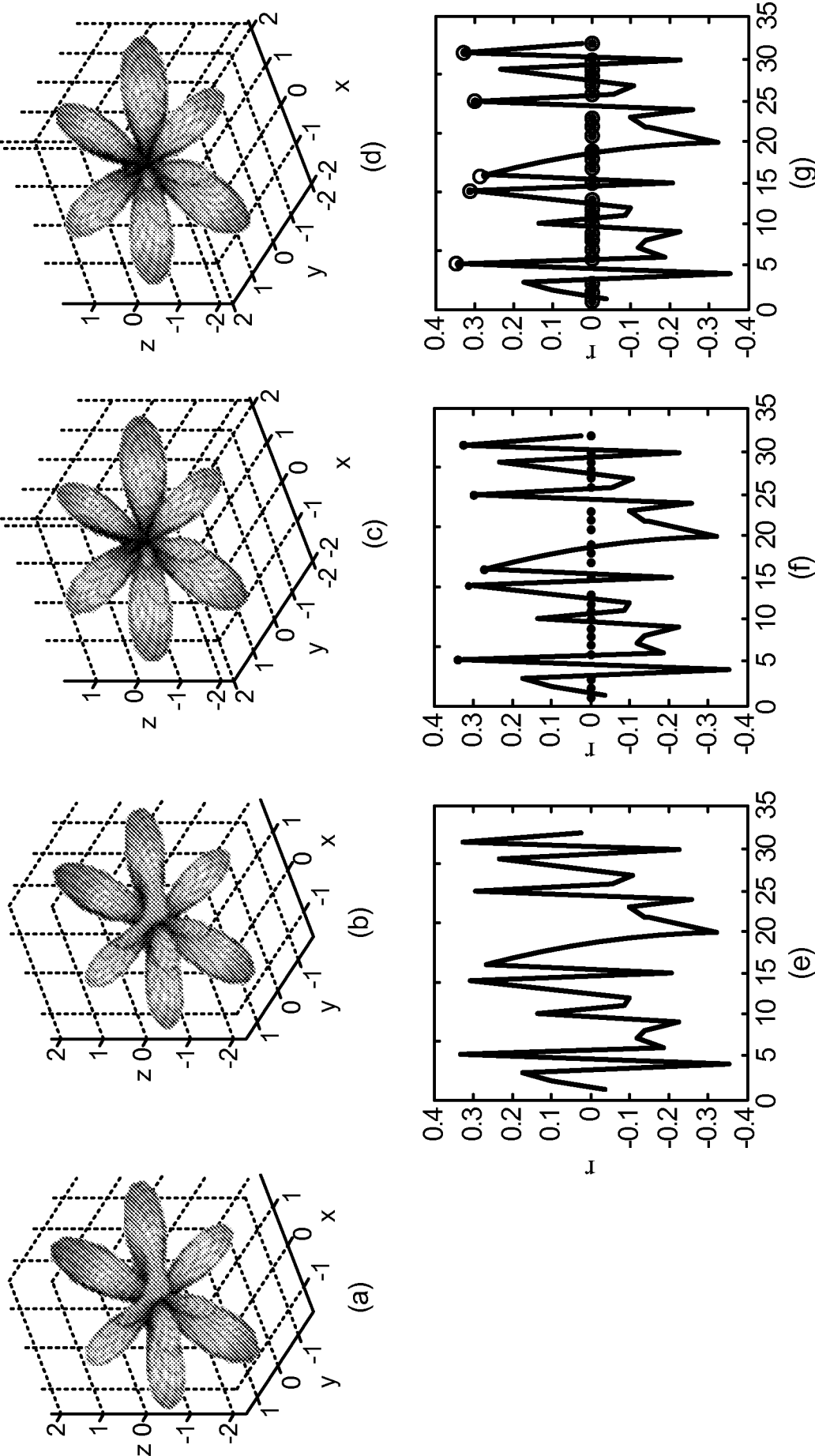
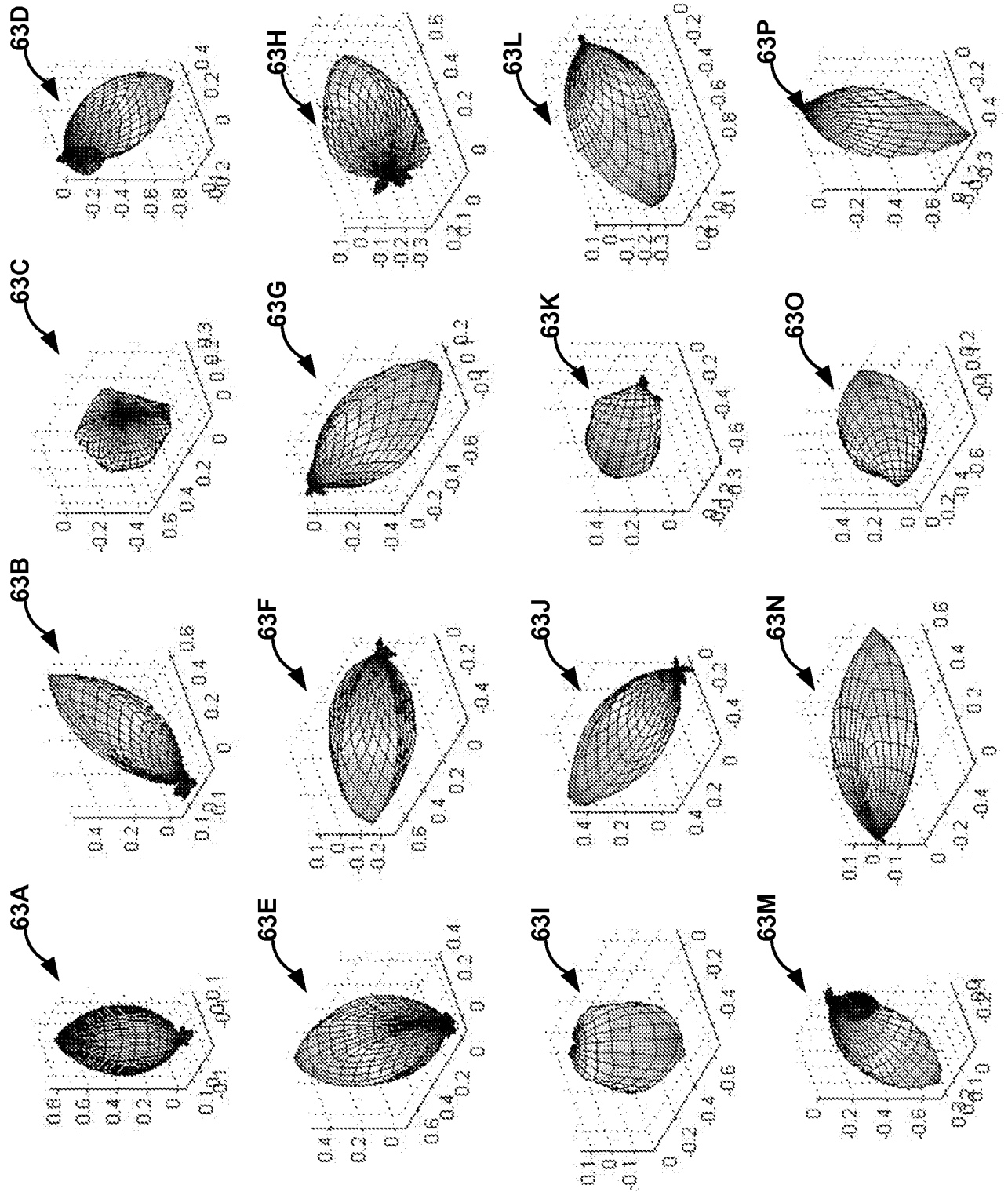


FIG. 16



$$V \approx \sum_{j=1}^J \omega_j \Omega_j$$

j-th weighting value

j-th directional vector

FIG. 17

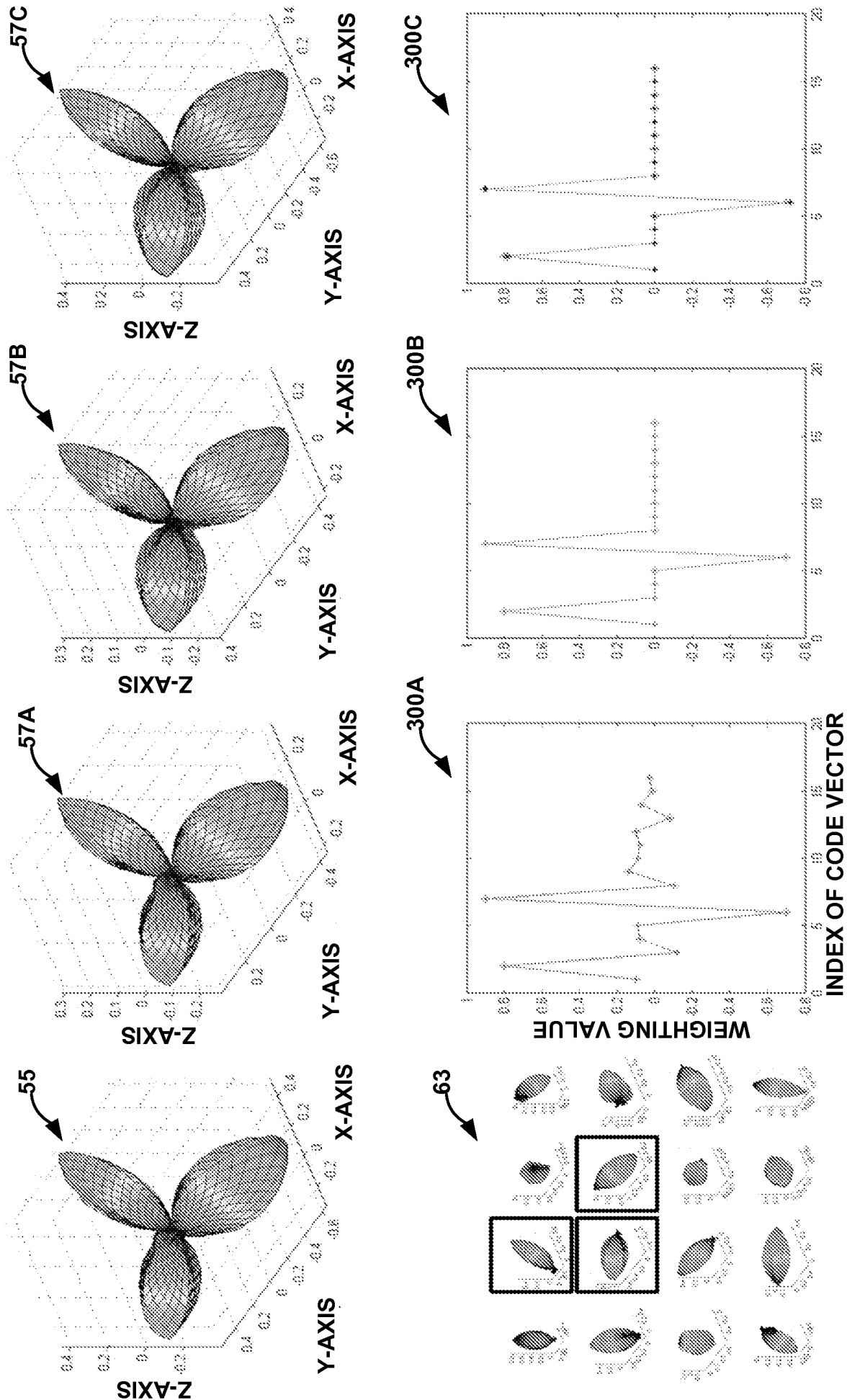


FIG. 18

INDEX 0	VAL 0	●●●	VAL 9
INDEX 1	VAL 0	●●●	VAL 9
INDEX 2	VAL 0	●●●	VAL 9
● ● ●			
INDEX 255	VAL 0	●●●	VAL 9

FIG. 19A

INDEX 0	VAL 0	●●●	VAL 15
INDEX 1	VAL 0	●●●	VAL 15
INDEX 2	VAL 0	●●●	VAL 15
● ● ●			
INDEX 255	VAL 0	●●●	VAL 15

FIG. 19B

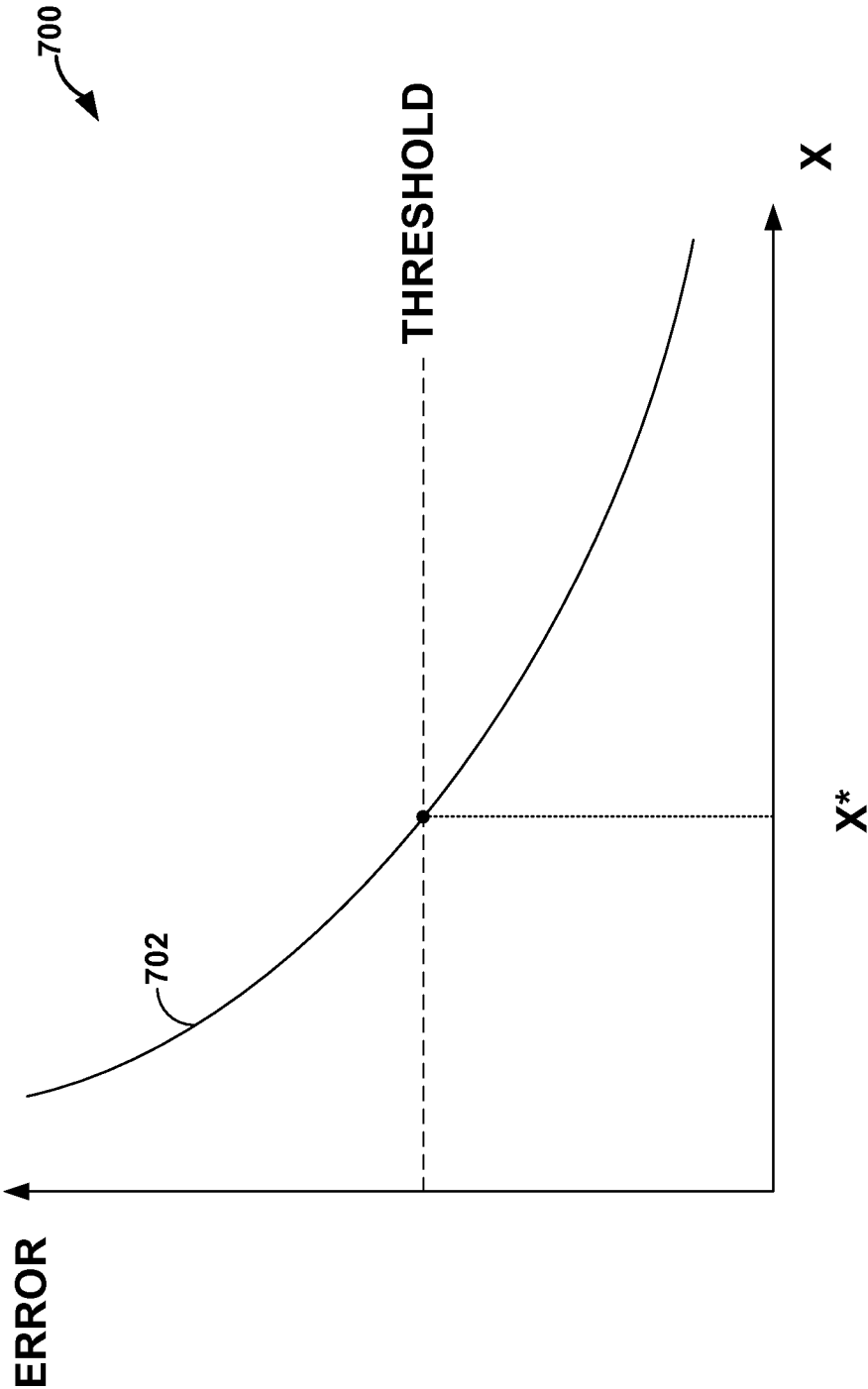
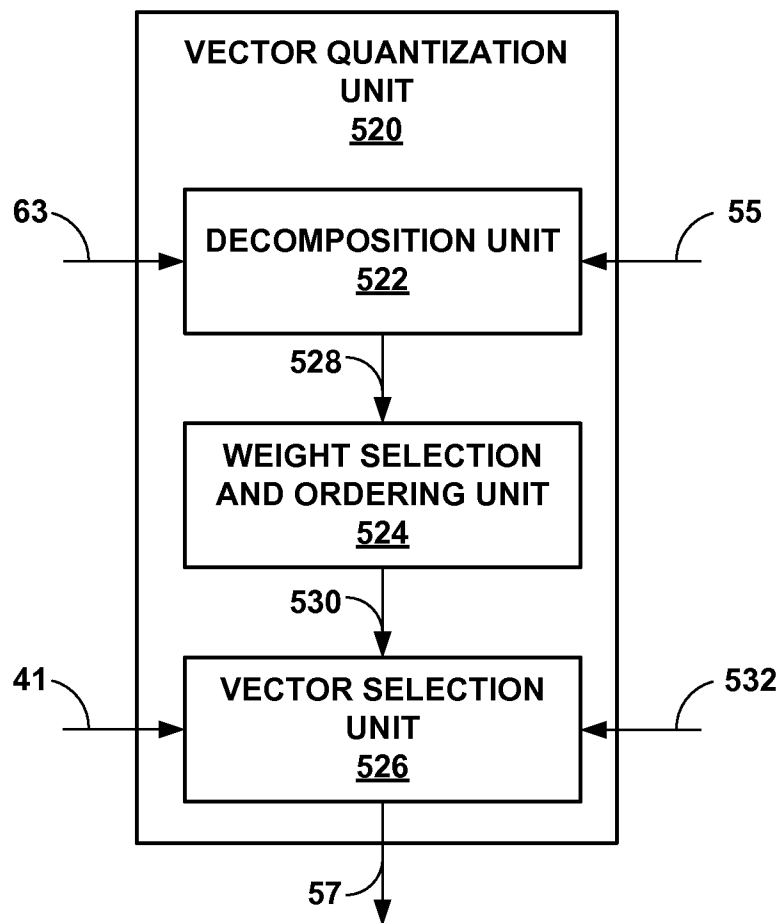
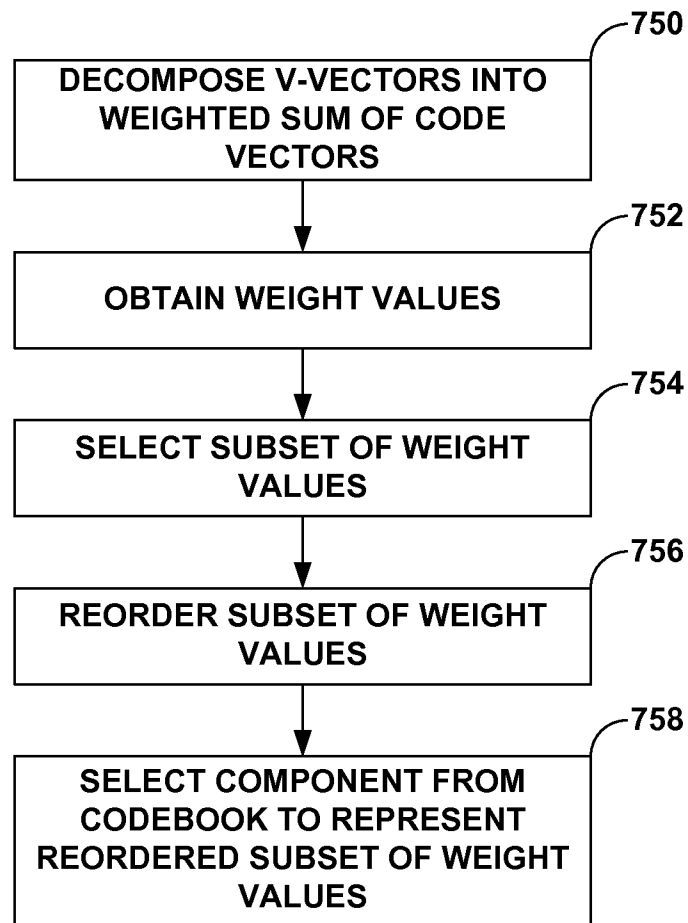
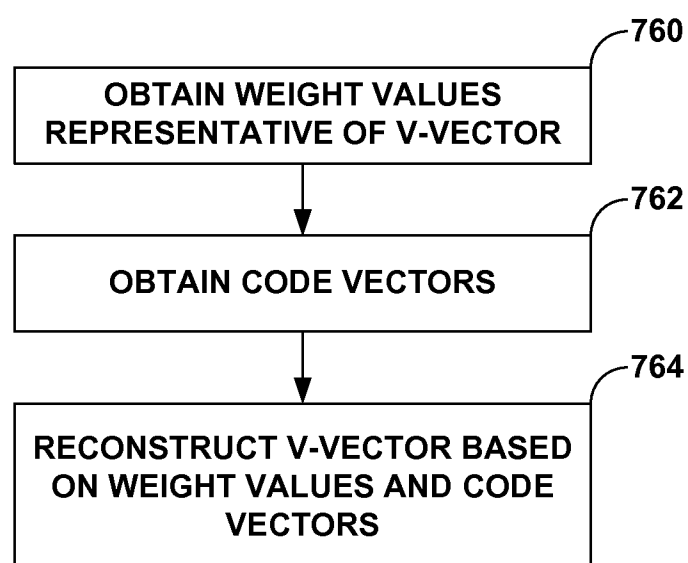


FIG. 20

**FIG. 21**

**FIG. 22****FIG. 23**

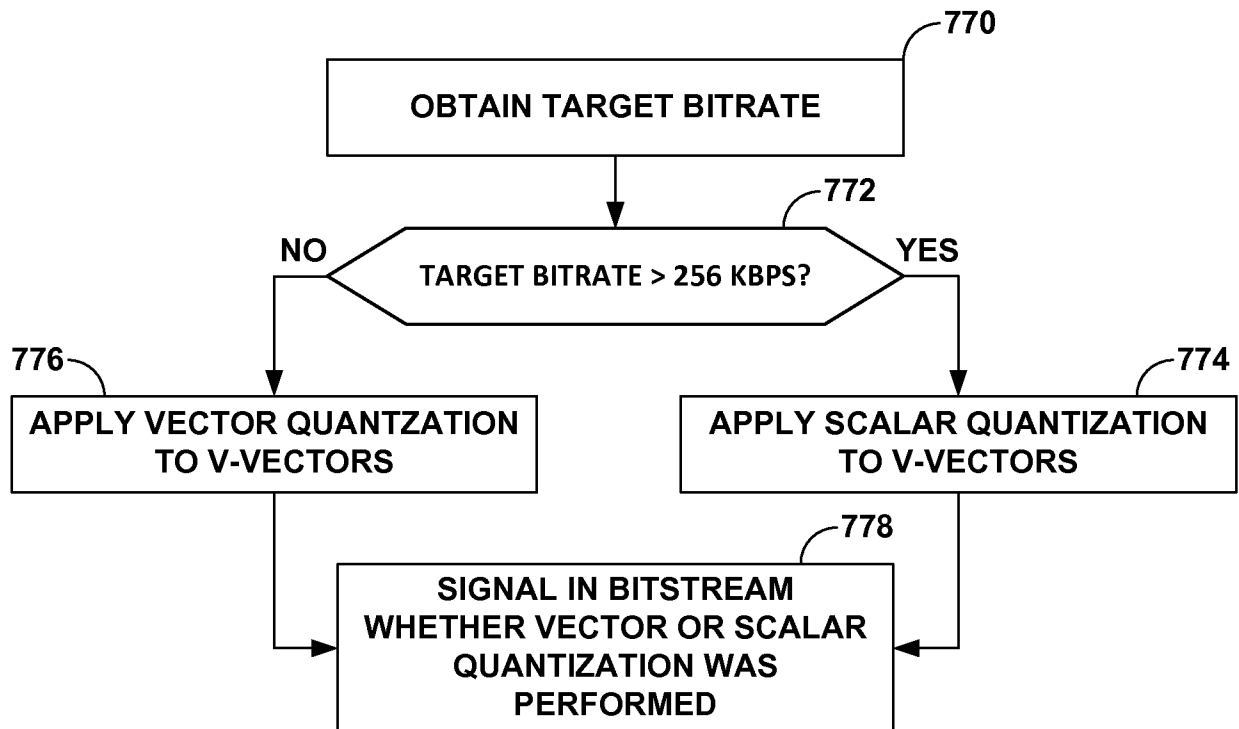


FIG. 24

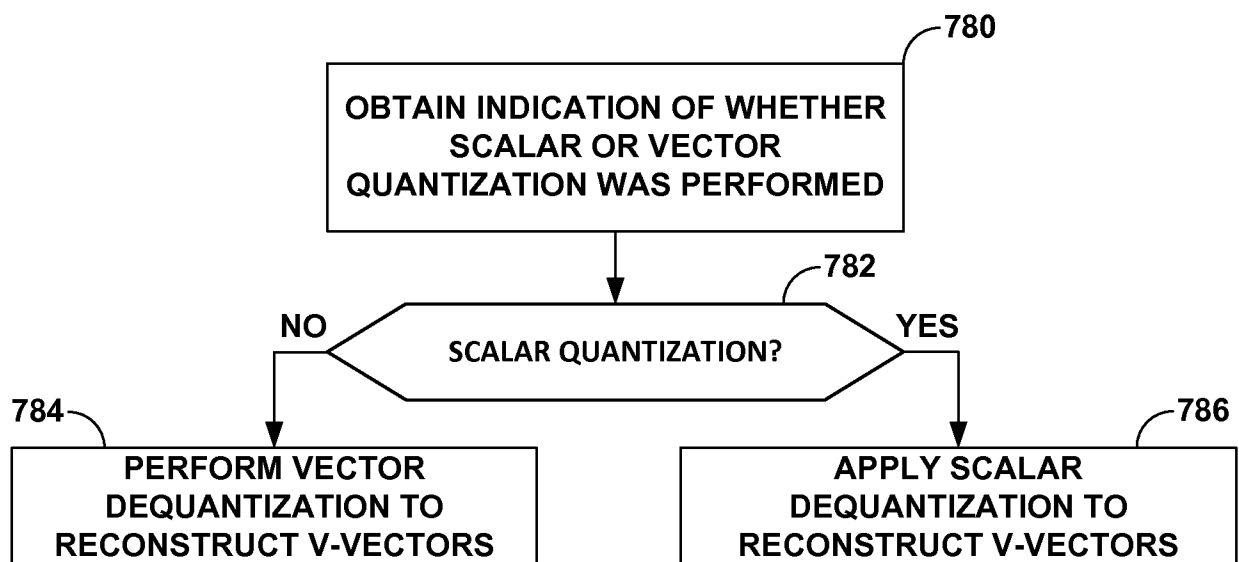
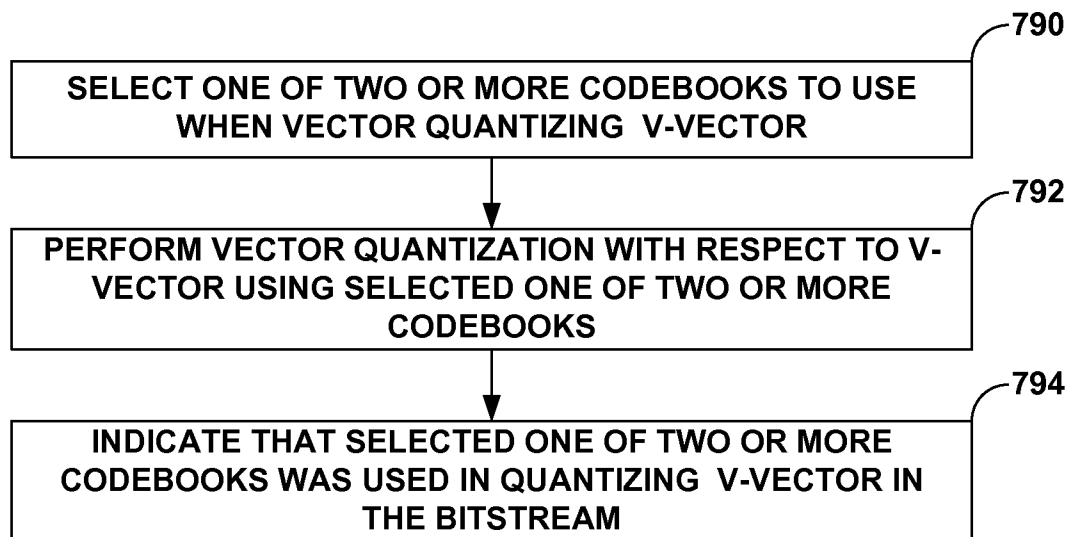
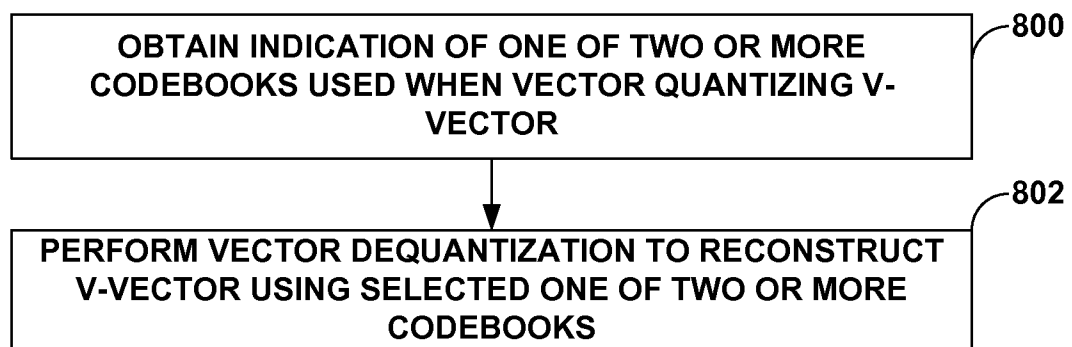


FIG. 25

**FIG. 26****FIG. 27**