Index

Nth-order differential array, 111
dipole, 19
  Nth-order, 19
  first-order, 19, 34
  second-order, 19, 60
directional beamformer, 16
directivity factor, 18, 27
  Nth-order DMA, 112
  first-order cardioid, 41
  first-order dipole, 35
  first-order DMA, 18, 53, 148
  first-order hypercardioid, 54
  first-order supercardioid, 54
minimum-norm filter, 118
  second-order cardioid, 90
  second-order dipole, 62
  second-order DMA, 18, 74, 151
third-order DMA, 18, 102, 165
directivity index, 18, 27
directivity pattern, 4, 17
electronic steering, 16
endfire direction, 16
farfield, 2
filter-and-sum beamformer, 6, 16
first-order differential array, 33
  MacLaurin’s series approximation, 146
  minimum-norm filter, 119
front-to-back ratio, 19
gain in SNR, 24, 25
grating lobe, 16
hypercardioid, 19, 21
  Nth-order, 21
  first-order, 19
  second-order, 21, 65
cardioid, 20
  Nth-order, 20
  first-order, 19, 40
  second-order, 20, 65, 85
condition number, 51
cylindrically isotropic noise field, 18
delay-and-sum beamformer, 3
differential array, 1
differential microphone array (DMA), 6
cardio, 20
  Nth-order, 20
  first-order, 19, 40
  second-order, 20, 65, 85
condition number, 51
cylindrically isotropic noise field, 18
delay-and-sum beamformer, 3
differential array, 1
differential microphone array (DMA), 6
third-order, 21
input SNR, 24
linearly constrained minimum variance (LCMV) filter, 116, 178
main lobe, 5, 16
microphone array, 1
minimum variance distortionless response (MVDR) filter, 117
minimum-norm filter, 118
first-order cardioid, 119
second-order cardioid, 126
third-order cardioid, 132
third-order DMA, 138
minimum-norm solution, 117, 178
noise, 26
diffuse, 26
source, 27
white, 26
output SNR, 25
point noise source gain
Nth-order DMA, 112
first-order cardioid, 43
first-order dipole, 38
first-order DMA, 54, 148
minimum-norm filter, 118
second-order dipole, 64
second-order DMA, 75, 151
third-order DMA, 103, 165
polar pattern, 18
pseudo-coherence matrix, 25
quadrupole, 65
robust differential array, 115
second-order differential array, 59
MacLaurin’s series approximation, 149
minimum-norm filter, 126
side lobe, 5
spatial aliasing, 16
spherically isotropic noise field, 26
steering, 55, 93
steering vector, 15
supercardioid, 19, 21
Nth-order, 21
first-order, 19
second-order, 21, 65
third-order, 21
synchronize-and-add principle, 2
temporal frequency, 3, 15
third-order differential array, 95
MacLaurin’s series approximation, 164
minimum-norm filter, 132
Vandermonde matrix, 28, 146
white noise gain
Nth-order DMA, 112
first-order cardioid, 41
first-order dipole, 35
first-order DMA, 47, 147
minimum-norm filter, 118
second-order cardioid, 88
second-order dipole, 62
second-order DMA, 73, 150
third-order DMA, 97, 165