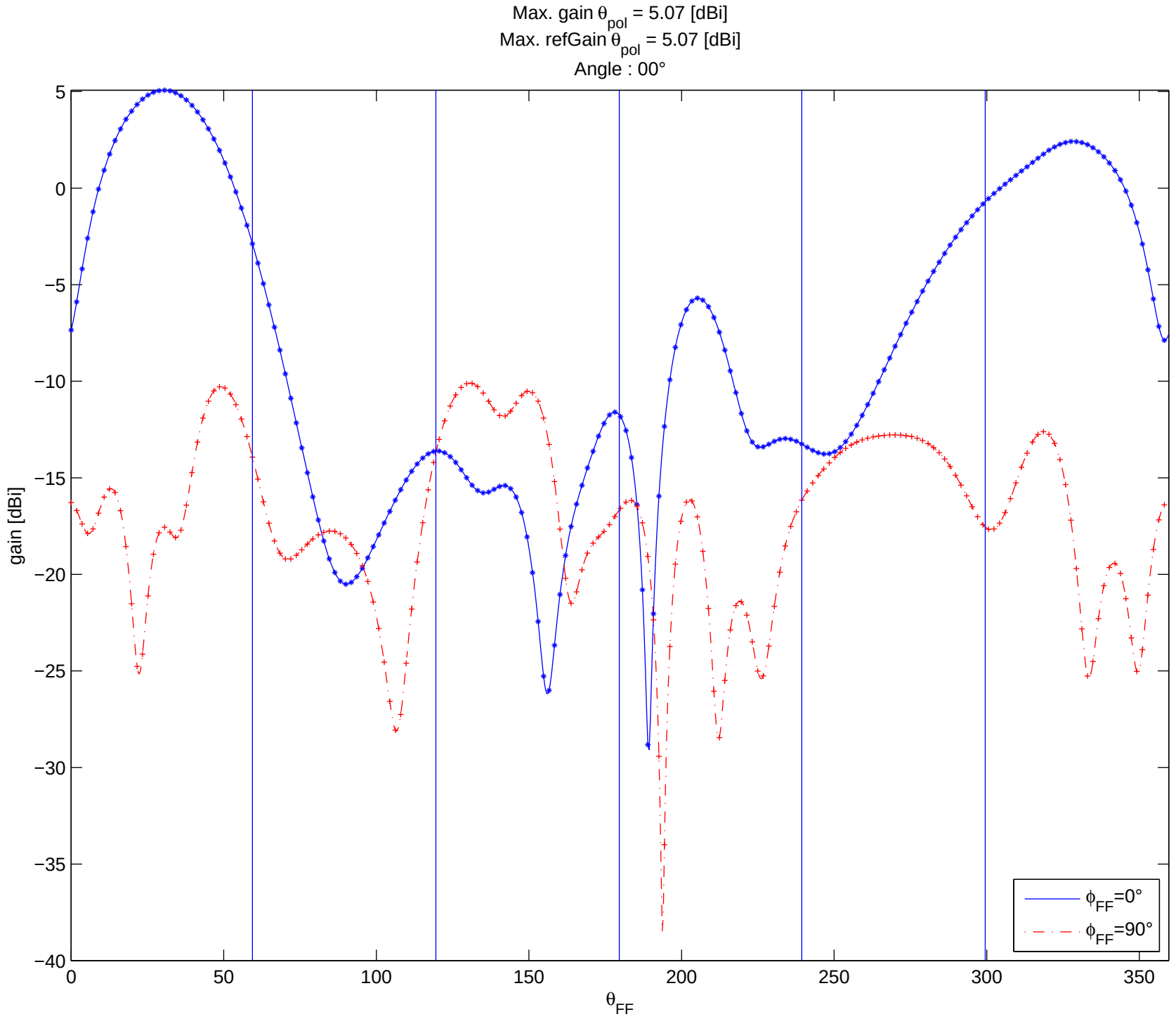
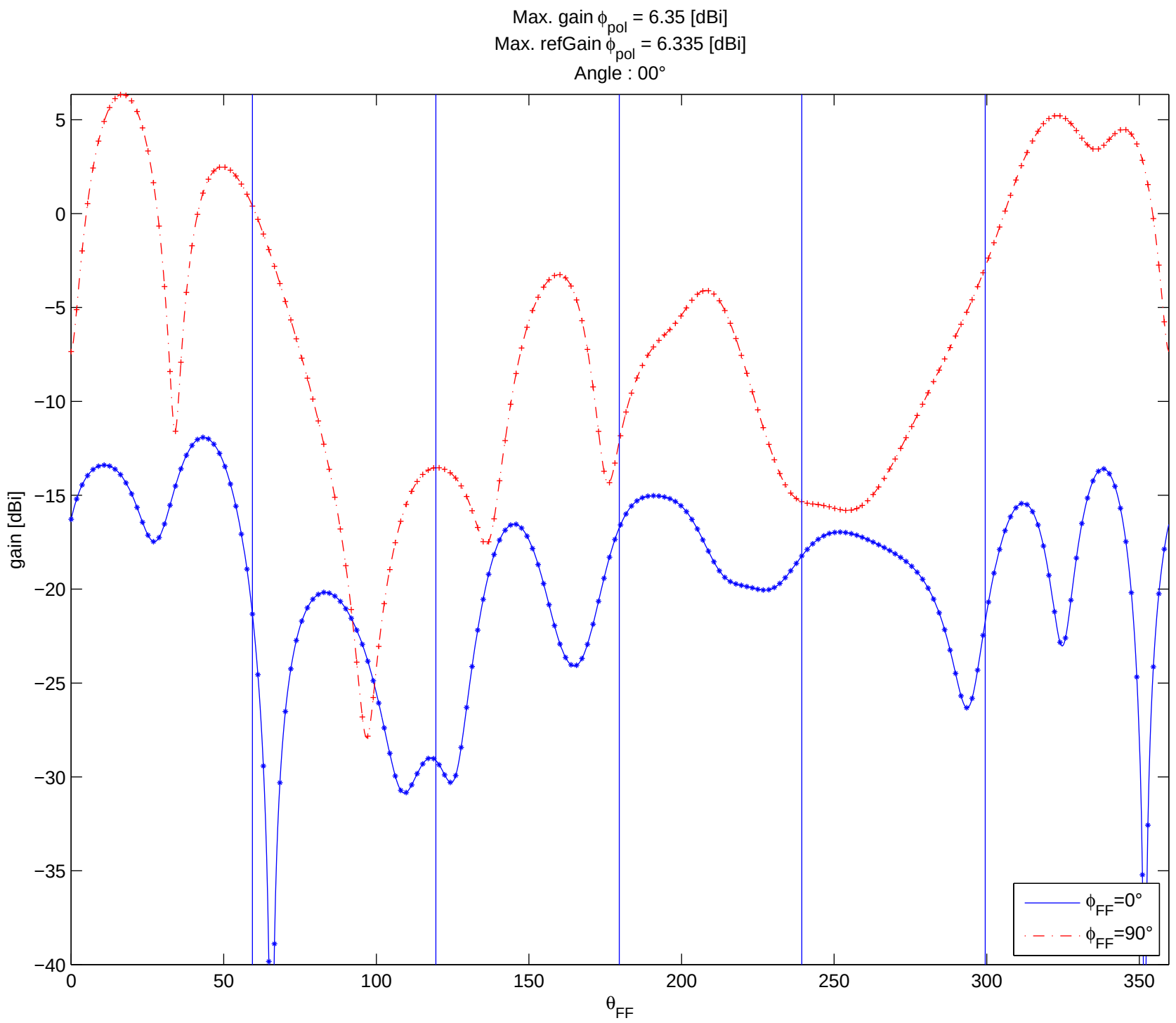
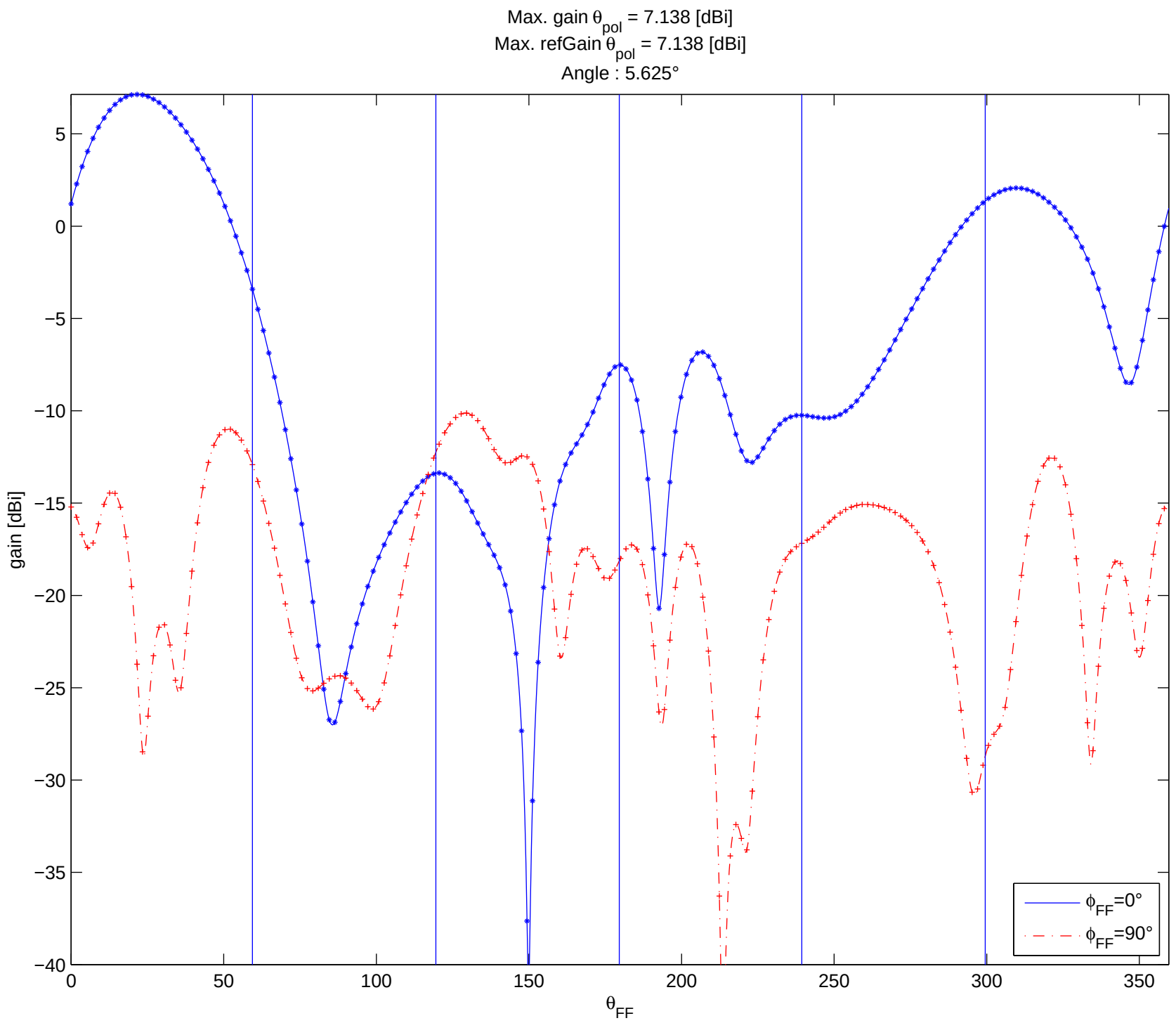
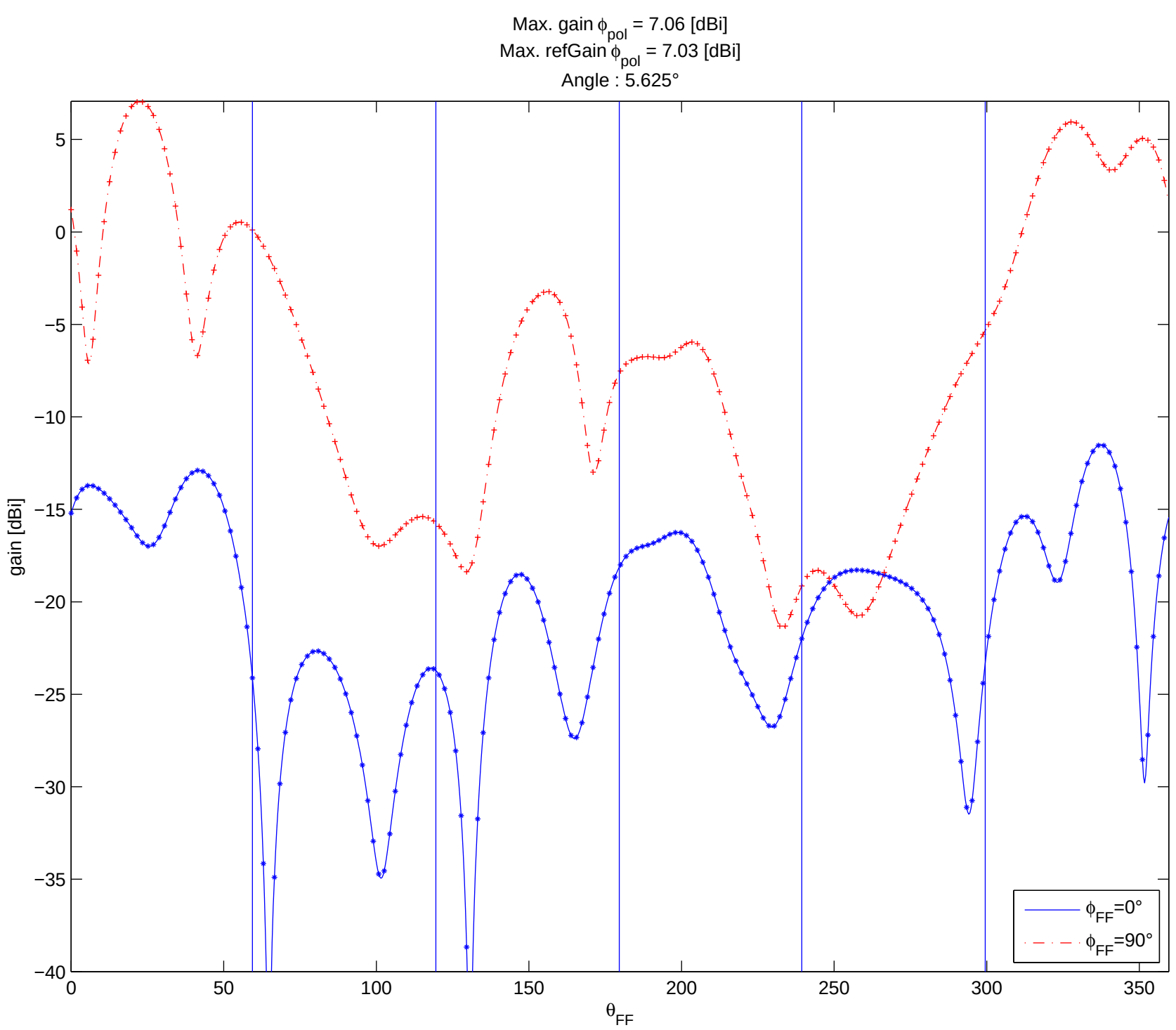
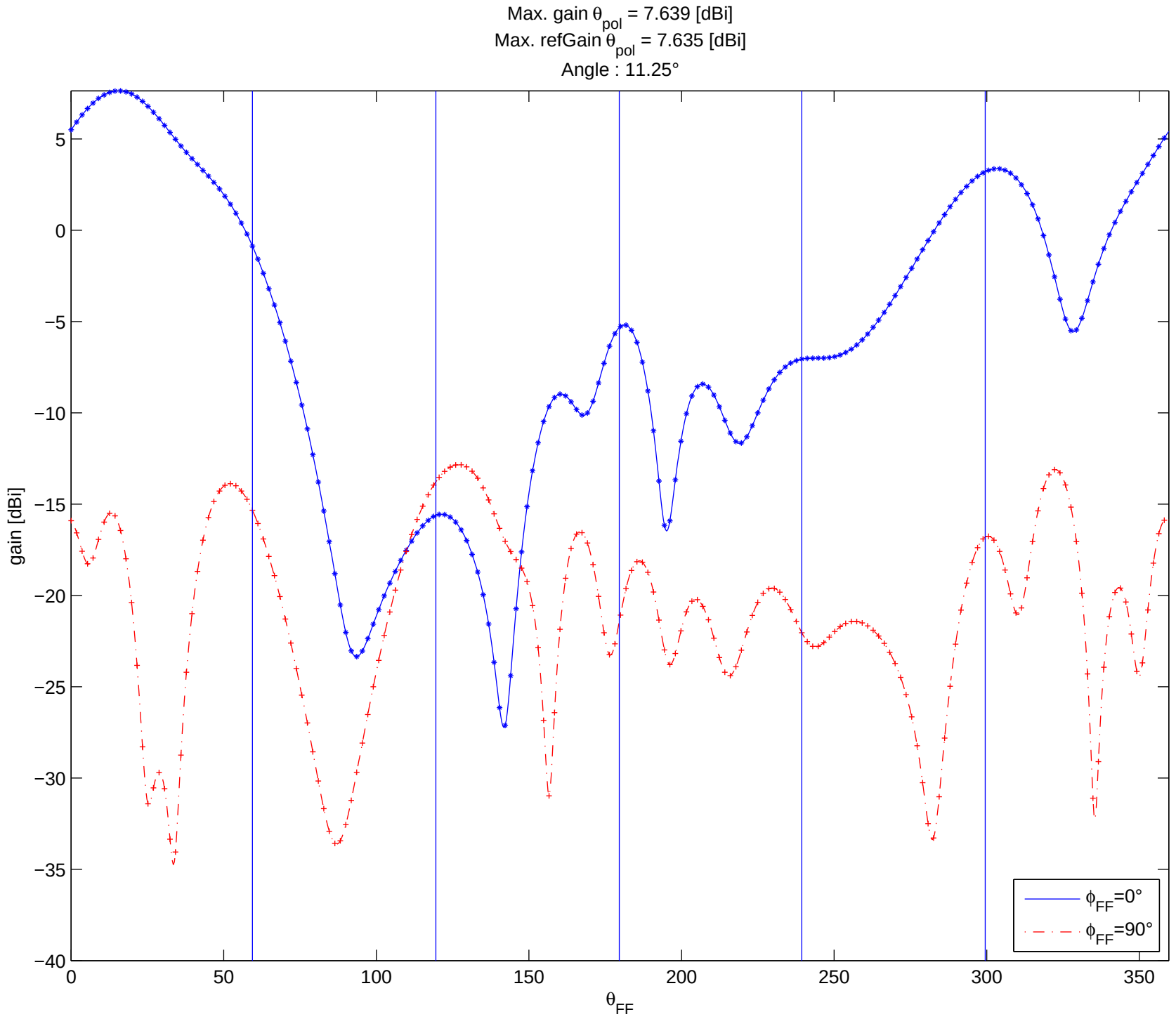
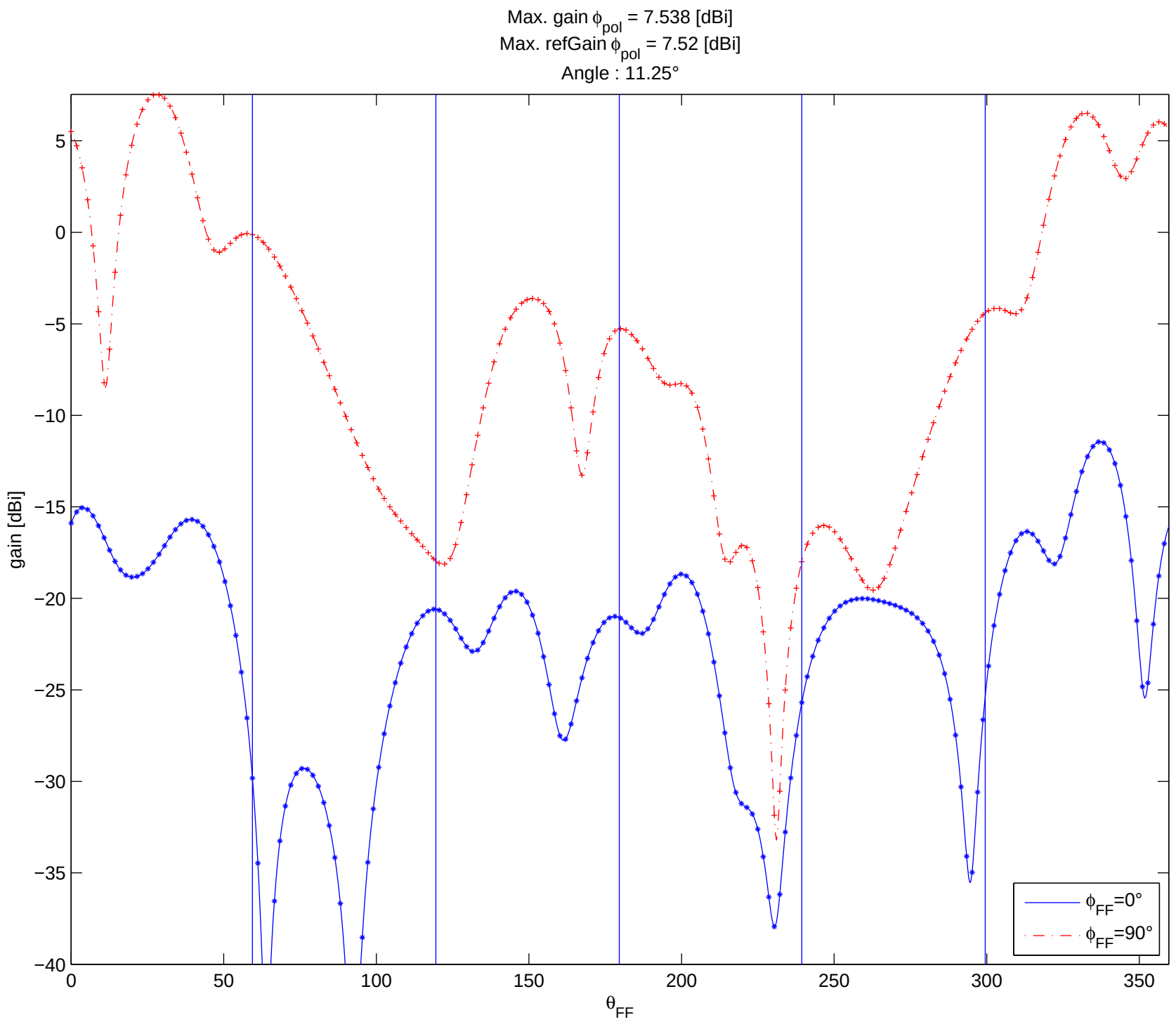

Max. gain θpol = 5.07 [dBi]
Max. refGain θpol = 5.07 [dBi]
Angle : 00°
gain [dBi]
θFF
5
0
−5
−10
−15
−20
−25
−30
−35
−40
0
50
100
150
200
250
300
350
ϕFF=0°
ϕFF=90°

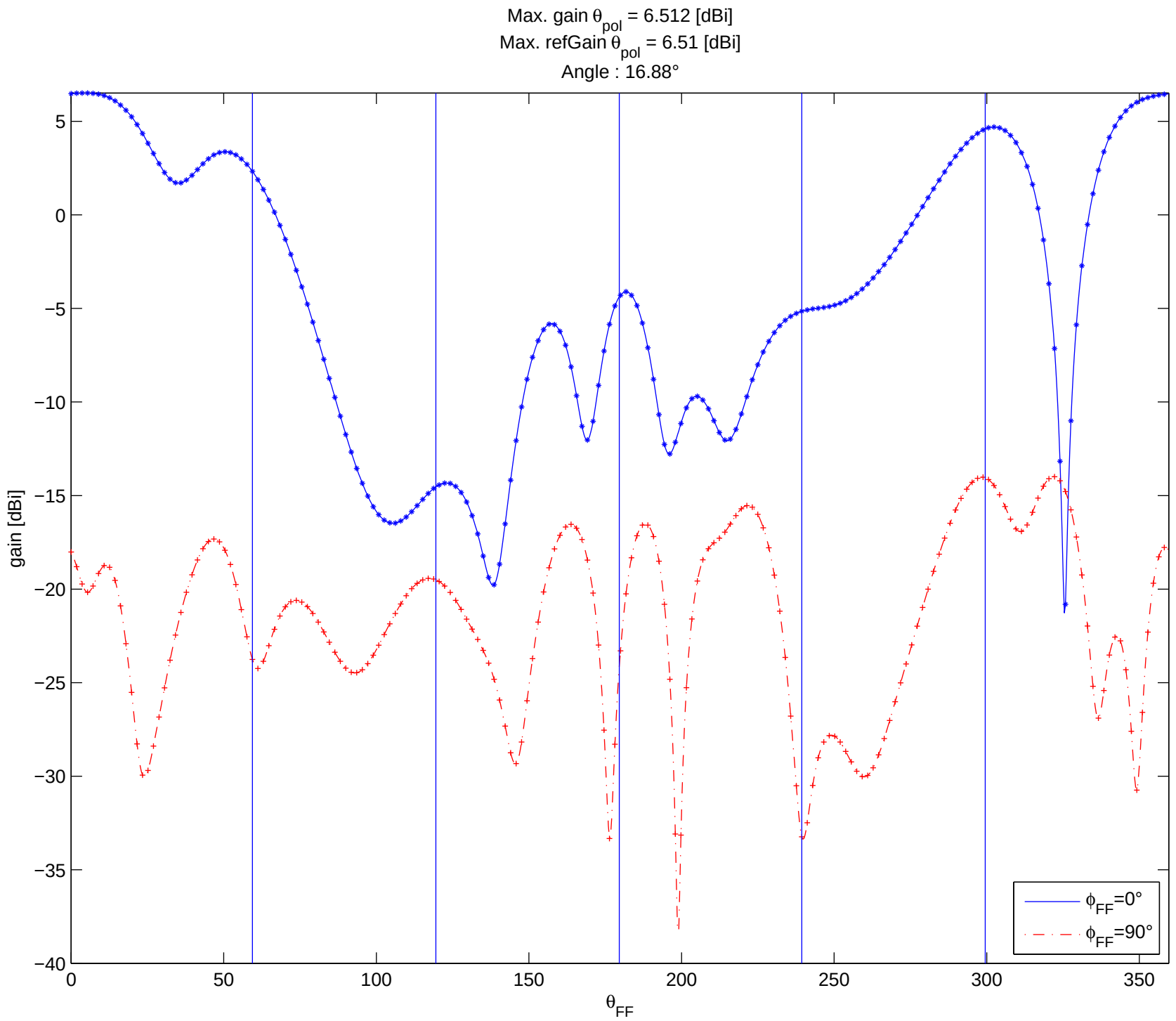

Max. gain ϕ_{pol} = 6.35 [dBi]
Max. refGain ϕ_{pol} = 6.335 [dBi]
Angle : 00°
gain [dBi]
θ_{FF}
ϕ_{FF}=0°
ϕ_{FF}=90°
5
0
−5
−10
−15
−20
−25
−30
−35
−40
0
50
100
150
200
250
300
350

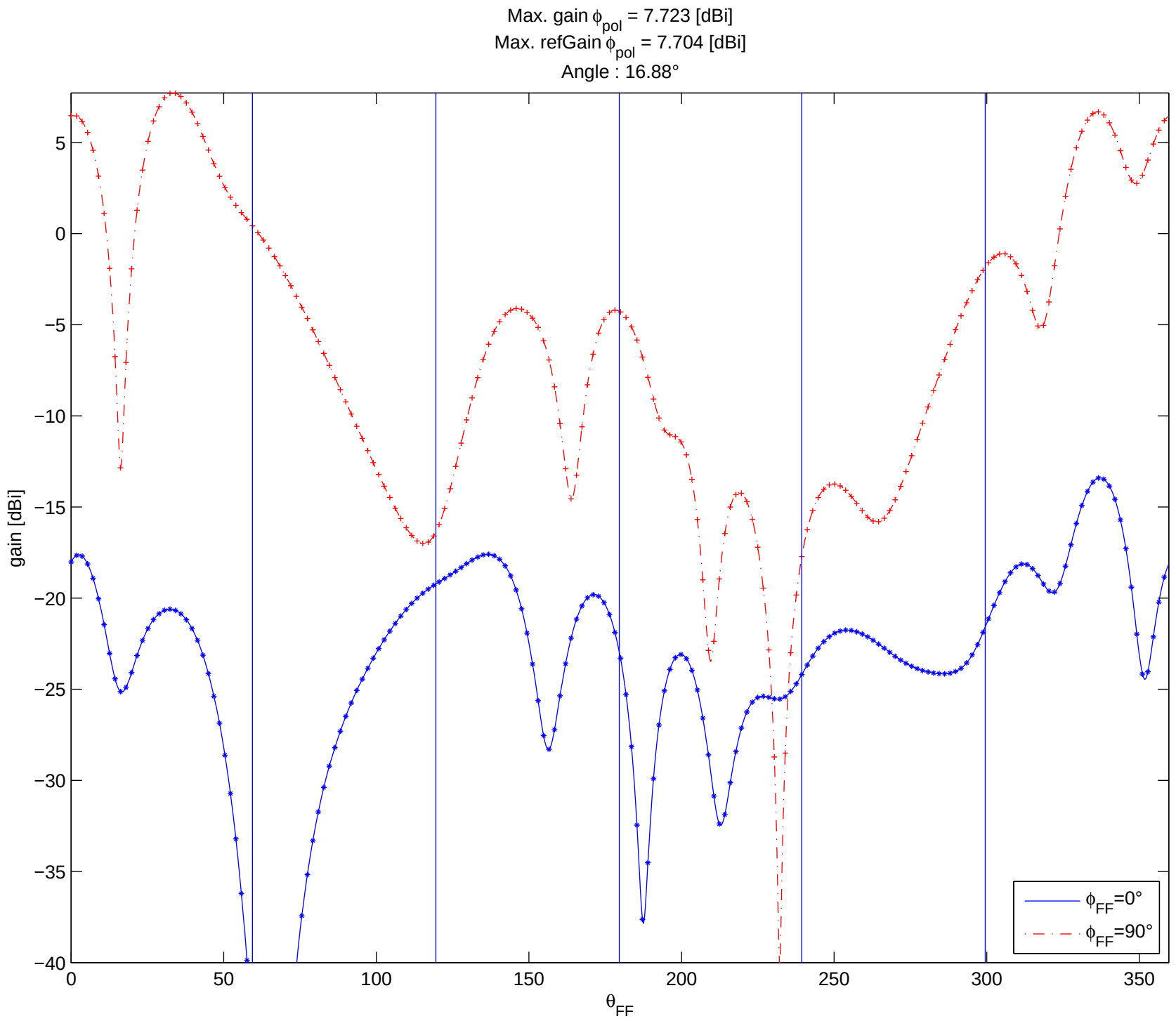

Max. gain θpol = 7.138 [dBi]
Max. refGain θpol = 7.138 [dBi]
Angle : 5.625°
gain [dBi]
θFF
5
0
−5
−10
−15
−20
−25
−30
−35
−40
0
50
100
150
200
250
300
350
ϕFF=0°
ϕFF=90°

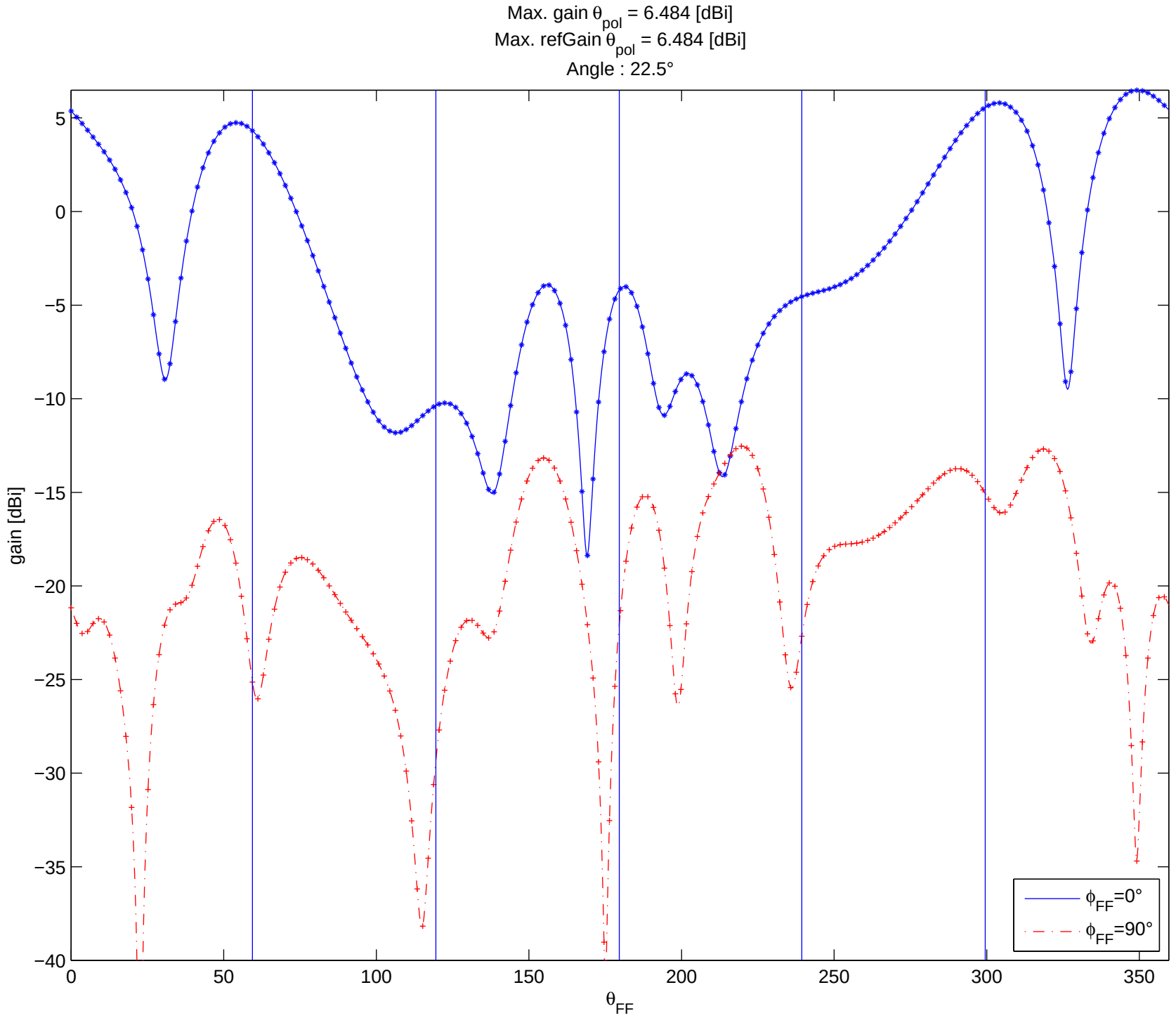

Max. gain ϕpol = 7.06 [dBi]
Max. refGain ϕpol = 7.03 [dBi]
Angle : 5.625°
gain [dBi]
θFF
ϕFF=0°
ϕFF=90°
5
0
−5
−10
−15
−20
−25
−30
−35
−40
0
50
100
150
200
250
300
350

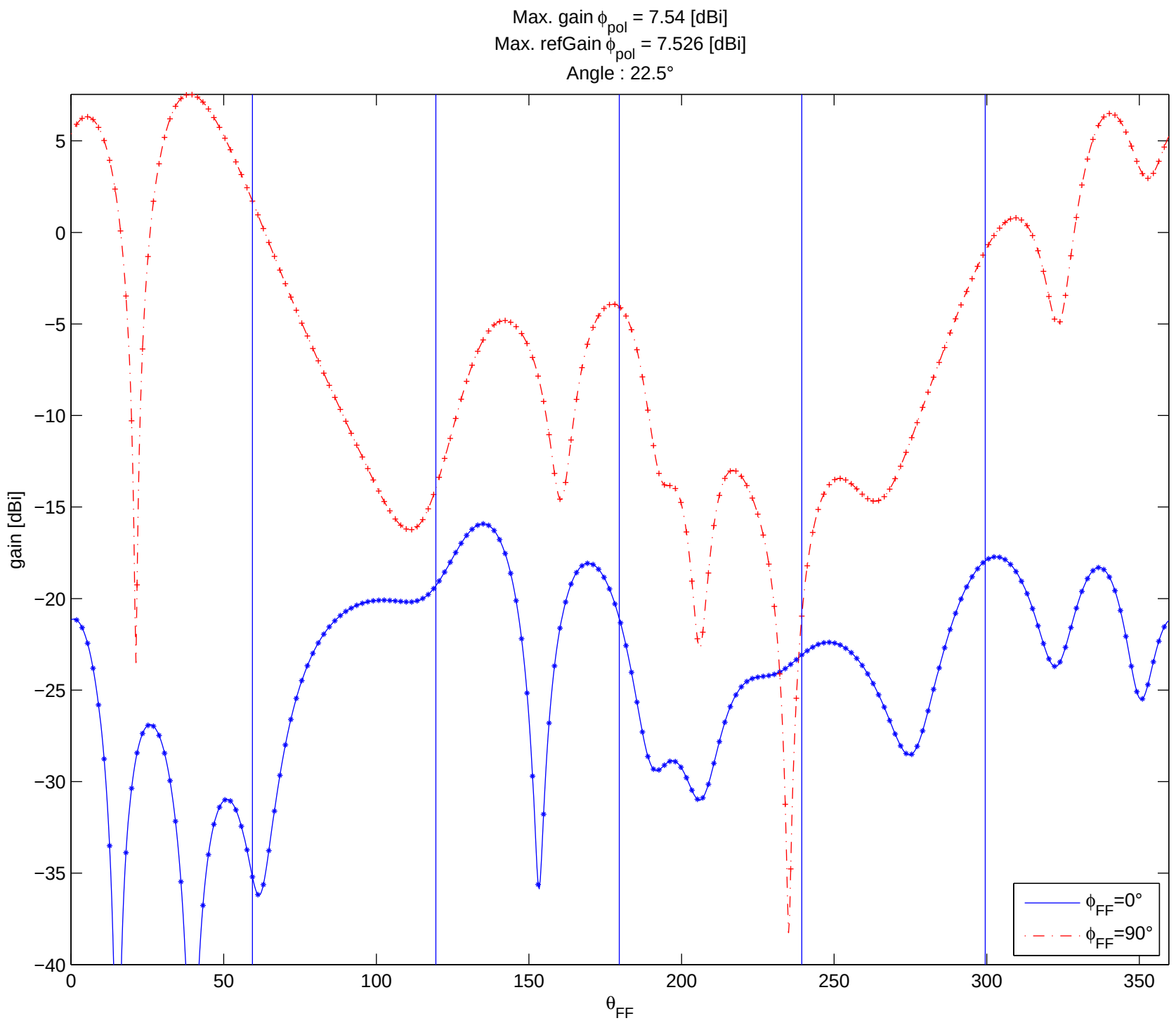

Max. gain θpol = 7.639 [dBi]
Max. refGain θpol = 7.635 [dBi]
Angle : 11.25°
gain [dBi]
θFF
5
0
−5
−10
−15
−20
−25
−30
−35
−40
0
50
100
150
200
250
300
350
ϕFF=0°
ϕFF=90°

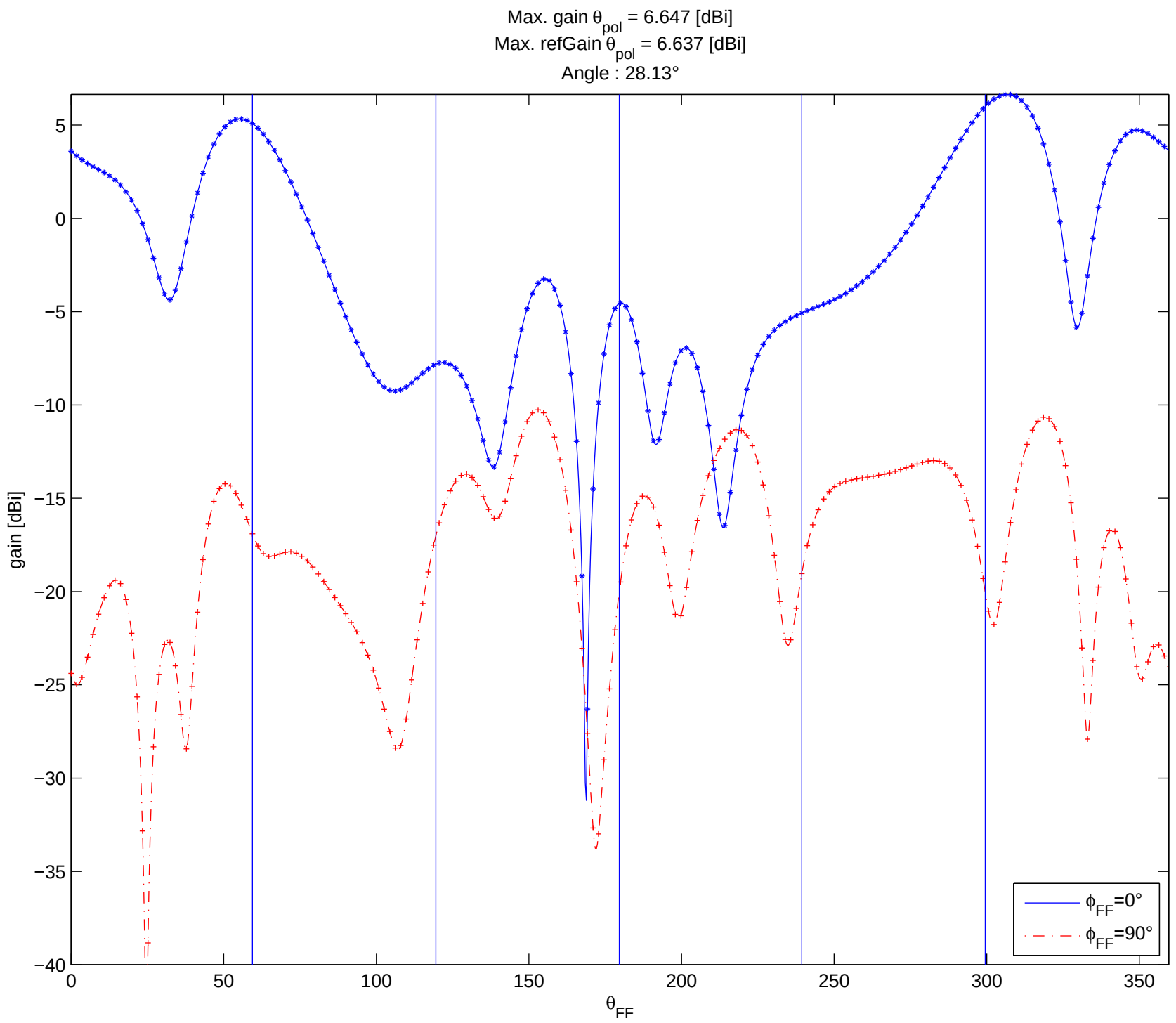

Max. gain ϕpol = 7.538 [dBi]
Max. refGain ϕpol = 7.52 [dBi]
Angle : 11.25°
gain [dBi]
θFF
ϕFF=0°
ϕFF=90°
5
0
−5
−10
−15
−20
−25
−30
−35
−40
0
50
100
150
200
250
300
350

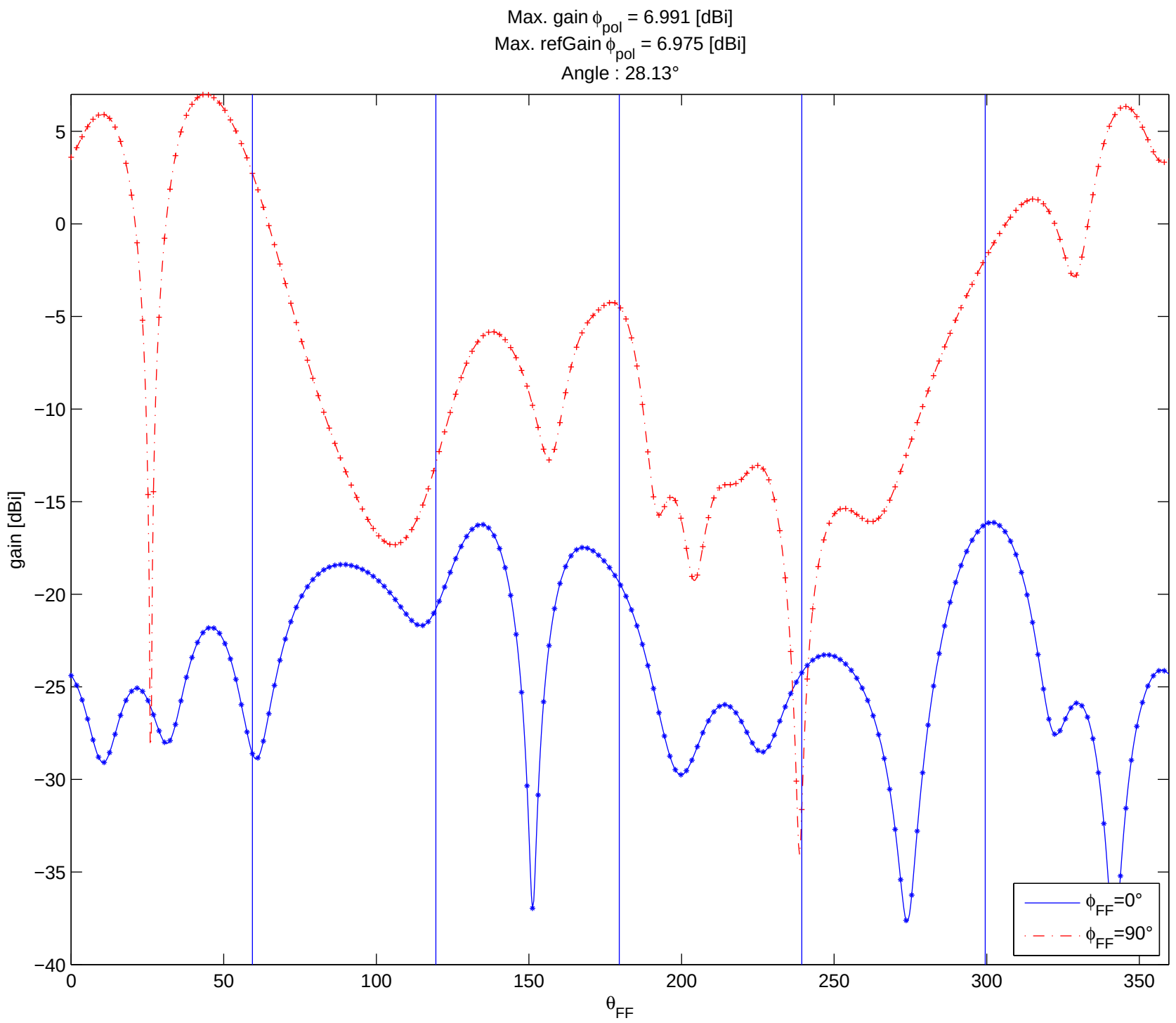

Max. gain θpol = 6.512 [dBi]
Max. refGain θpol = 6.51 [dBi]
Angle : 16.88°
gain [dBi]
θFF
ϕFF=0°
ϕFF=90°
5
0
−5
−10
−15
−20
−25
−30
−35
−40
0
50
100
150
200
250
300
350

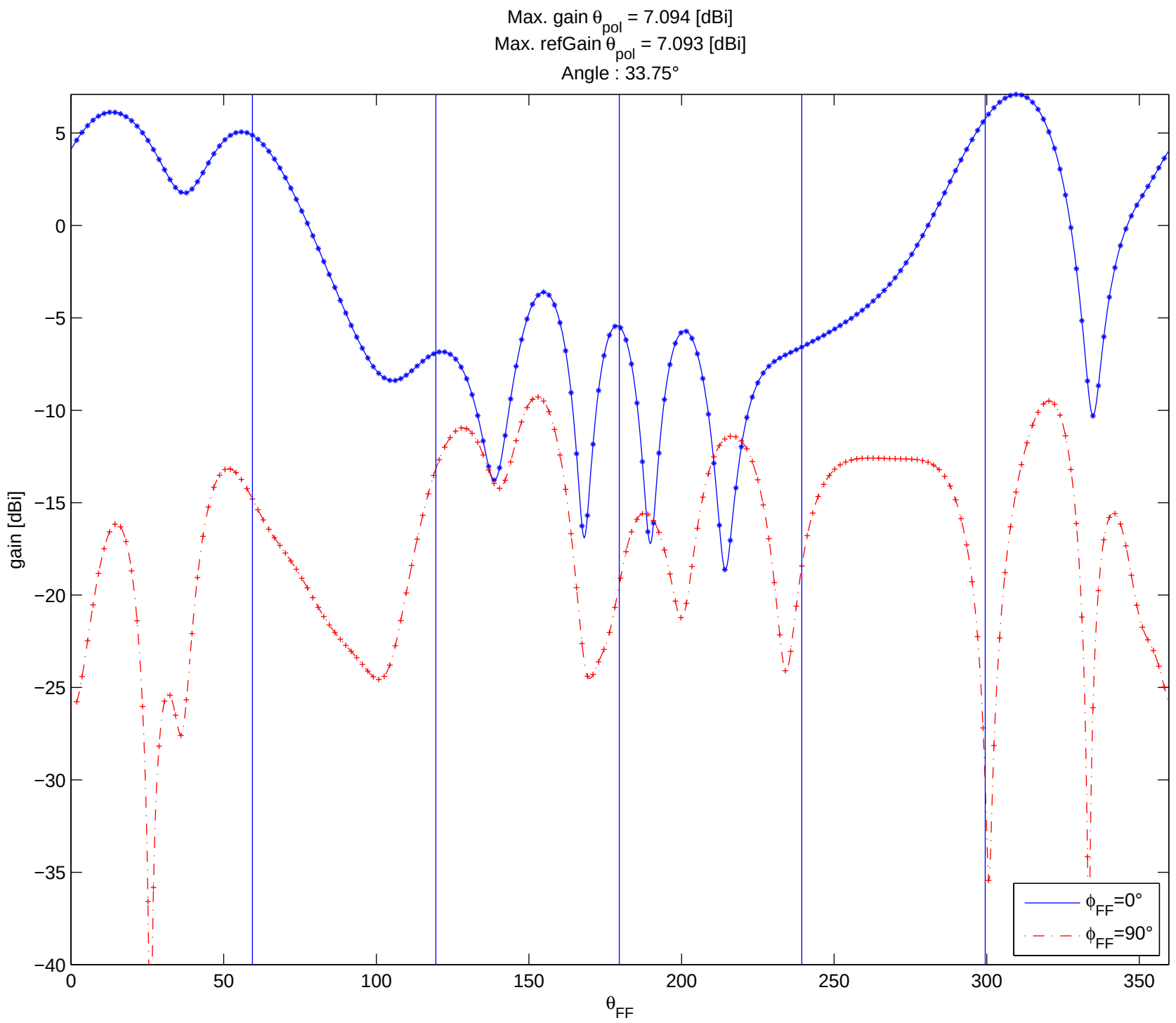

Max. gain ϕpol = 7.723 [dBi]
Max. refGain ϕpol = 7.704 [dBi]
Angle : 16.88°
gain [dBi]
θFF
ϕFF=0°
ϕFF=90°
5
0
−5
−10
−15
−20
−25
−30
−35
−40
0
50
100
150
200
250
300
350

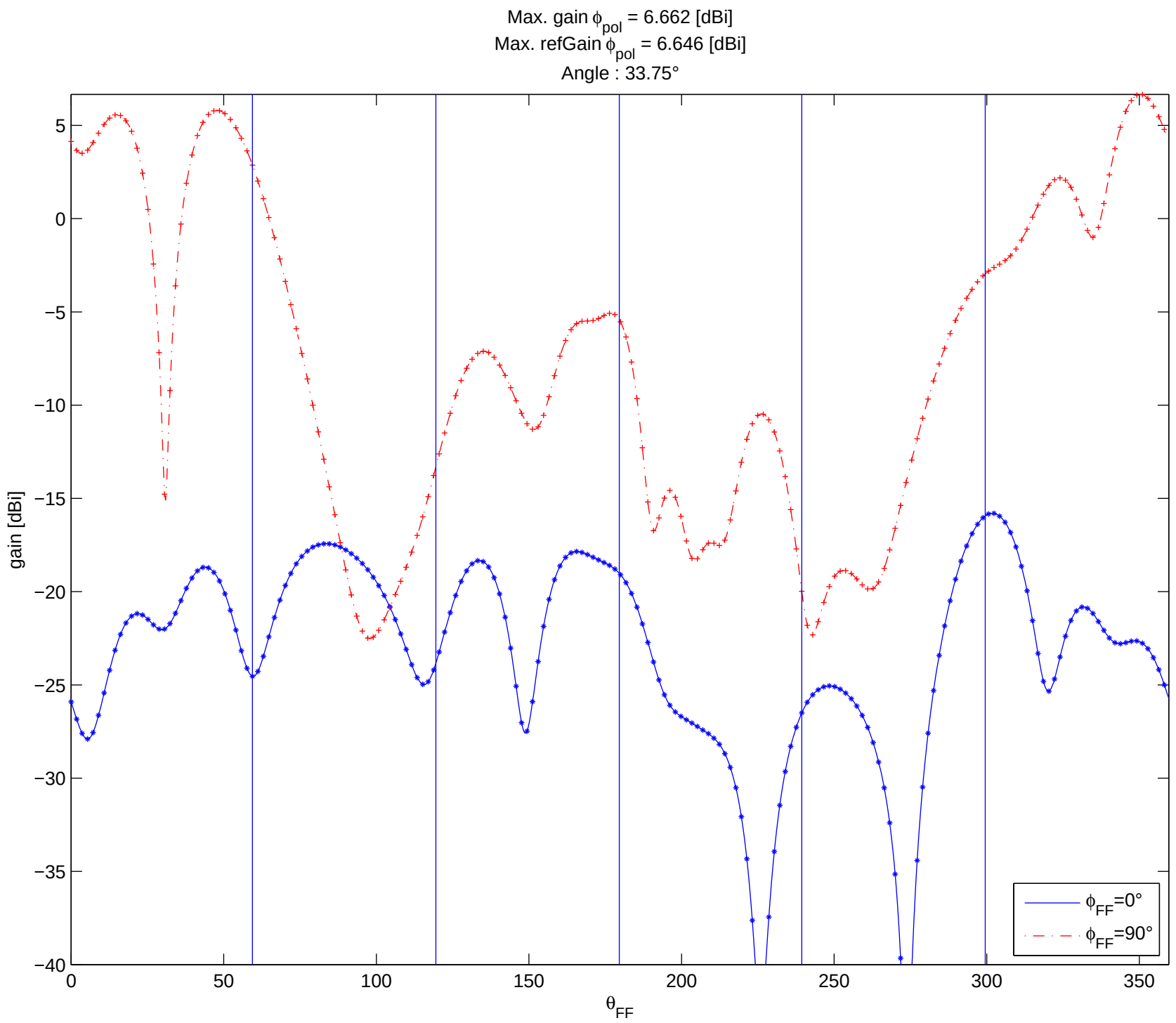

Max. gain θpol = 6.484 [dBi]
Max. refGain θpol = 6.484 [dBi]
Angle : 22.5°
gain [dBi]
θFF
5
0
−5
−10
−15
−20
−25
−30
−35
−40
0
50
100
150
200
250
300
350
ϕFF=0°
ϕFF=90°

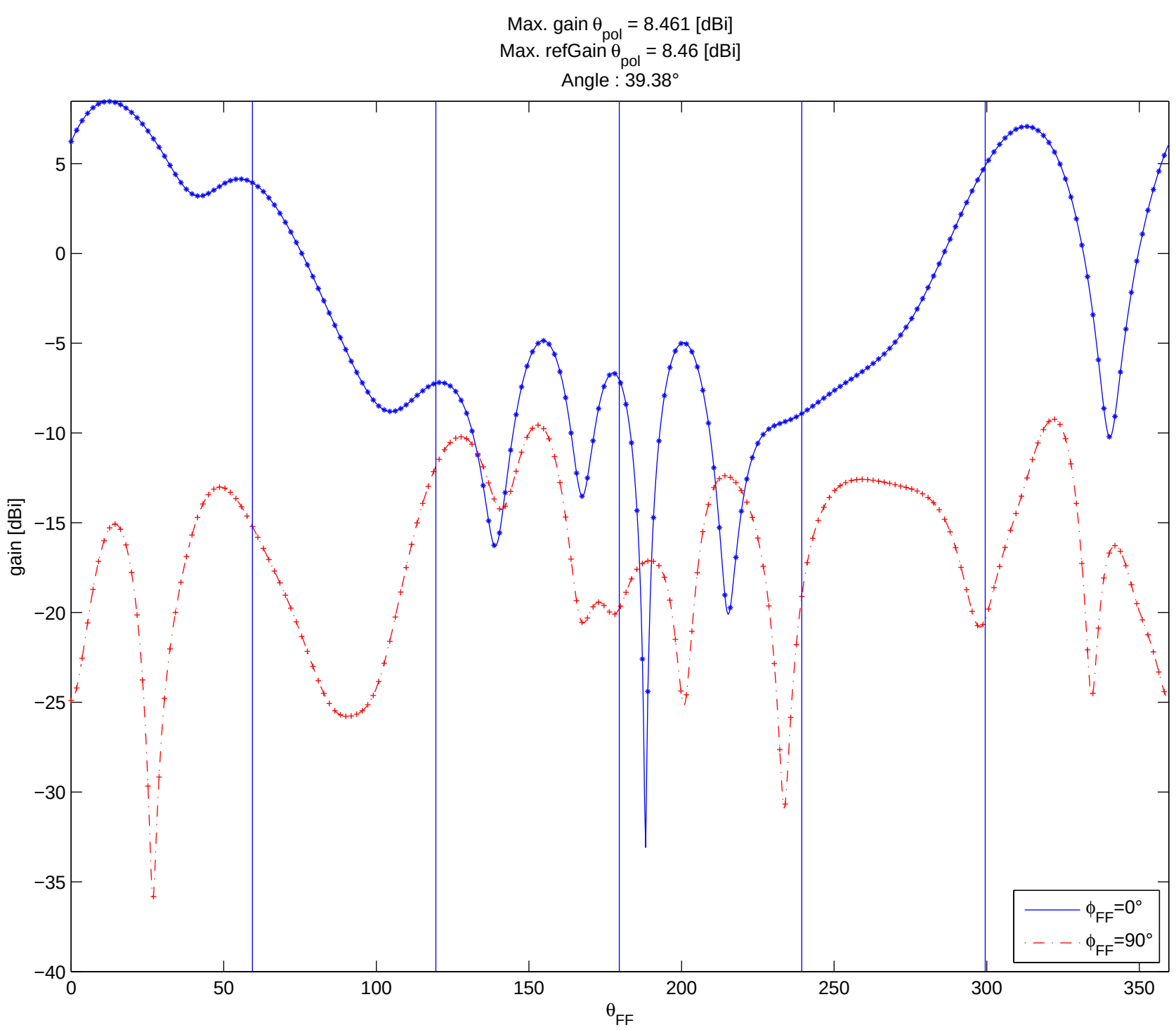

Max. gain ϕpol = 7.54 [dBi]
Max. refGain ϕpol = 7.526 [dBi]
Angle : 22.5°
gain [dBi]
θFF
ϕFF=0°
ϕFF=90°
5
0
−5
−10
−15
−20
−25
−30
−35
−40
0
50
100
150
200
250
300
350

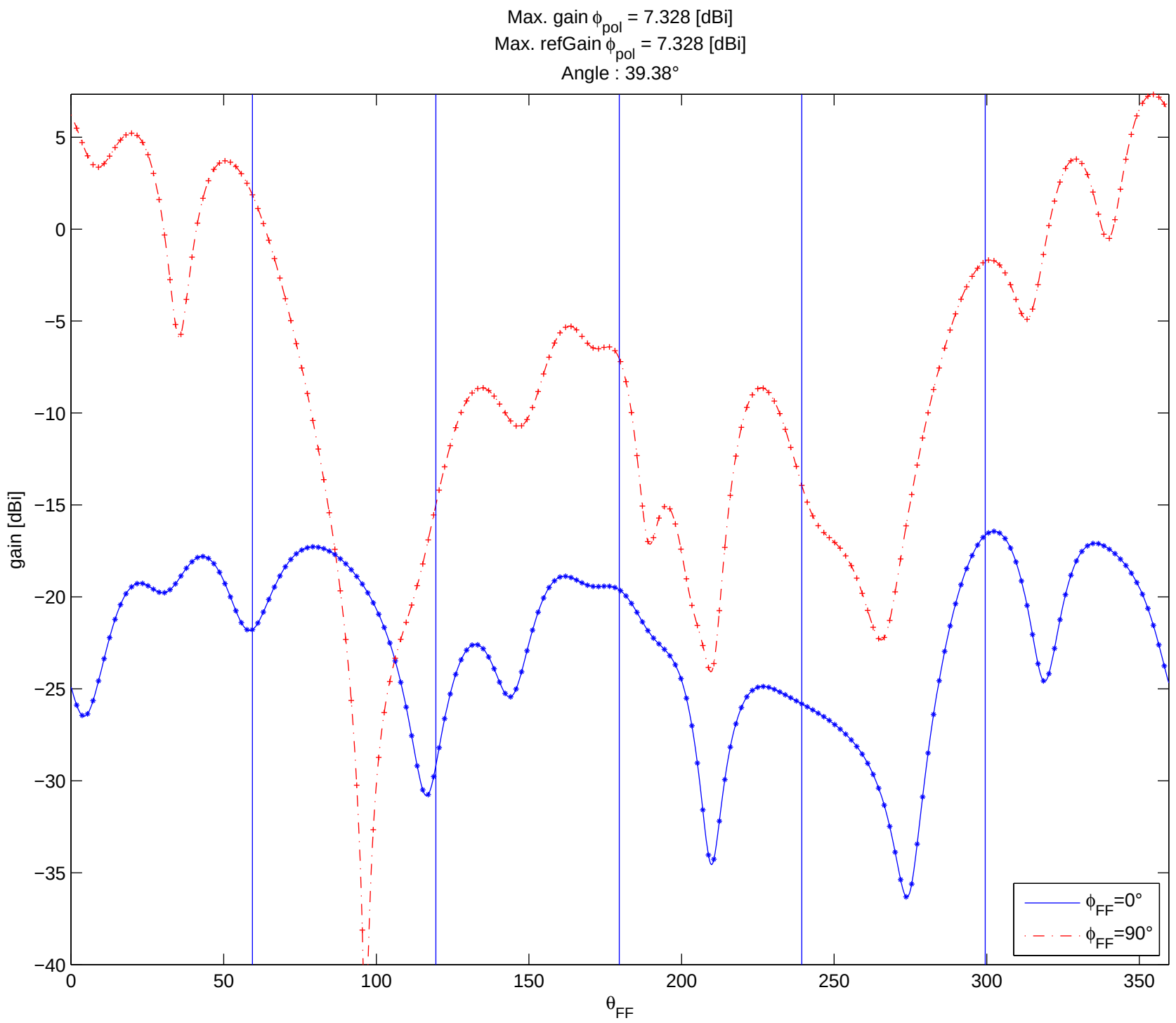

Max. gain θpol = 6.647 [dBi]
Max. refGain θpol = 6.637 [dBi]
Angle : 28.13°
gain [dBi]
θFF
5
0
−5
−10
−15
−20
−25
−30
−35
−40
0
50
100
150
200
250
300
350
ϕFF=0°
ϕFF=90°

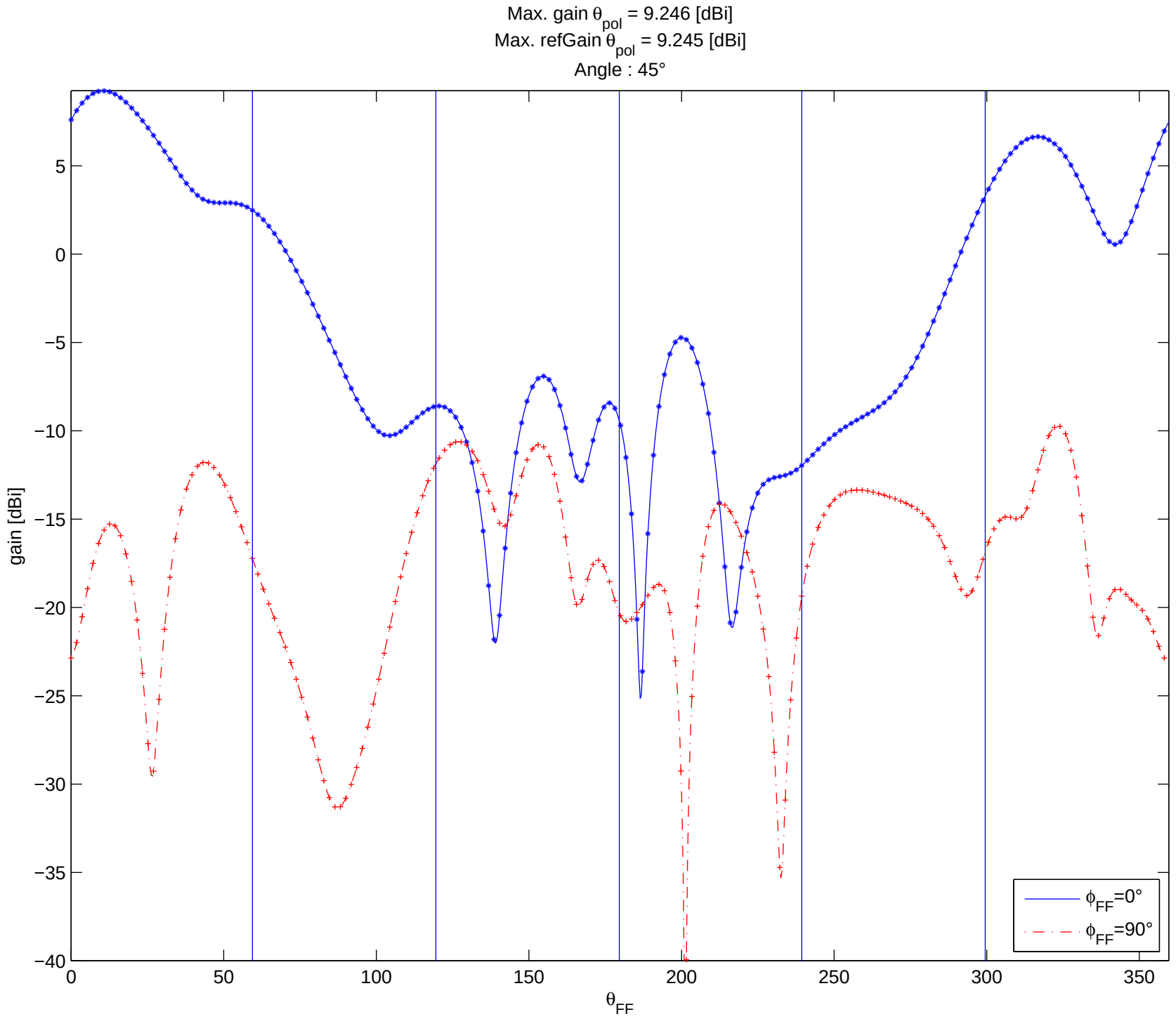

Max. gain ϕpol = 6.991 [dBi]
Max. refGain ϕpol = 6.975 [dBi]
Angle : 28.13°
gain [dBi]
θFF
ϕFF=0°
ϕFF=90°
5
0
−5
−10
−15
−20
−25
−30
−35
−40
0
50
100
150
200
250
300
350

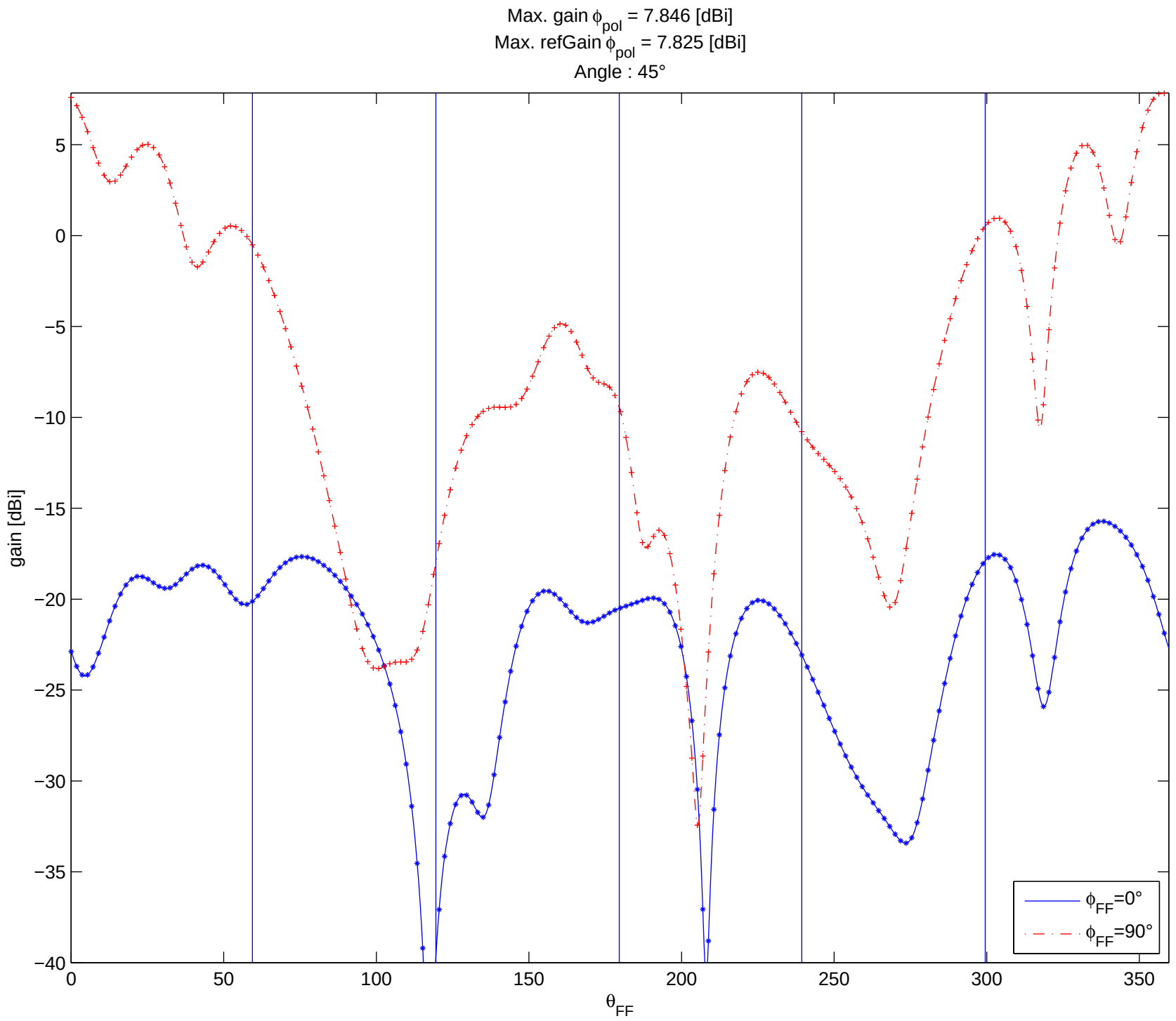

Max. gain θpol = 7.094 [dBi]
Max. refGain θpol = 7.093 [dBi]
Angle : 33.75°
gain [dBi]
θFF
ϕFF=0°
ϕFF=90°
5
0
−5
−10
−15
−20
−25
−30
−35
−40
0
50
100
150
200
250
300
350

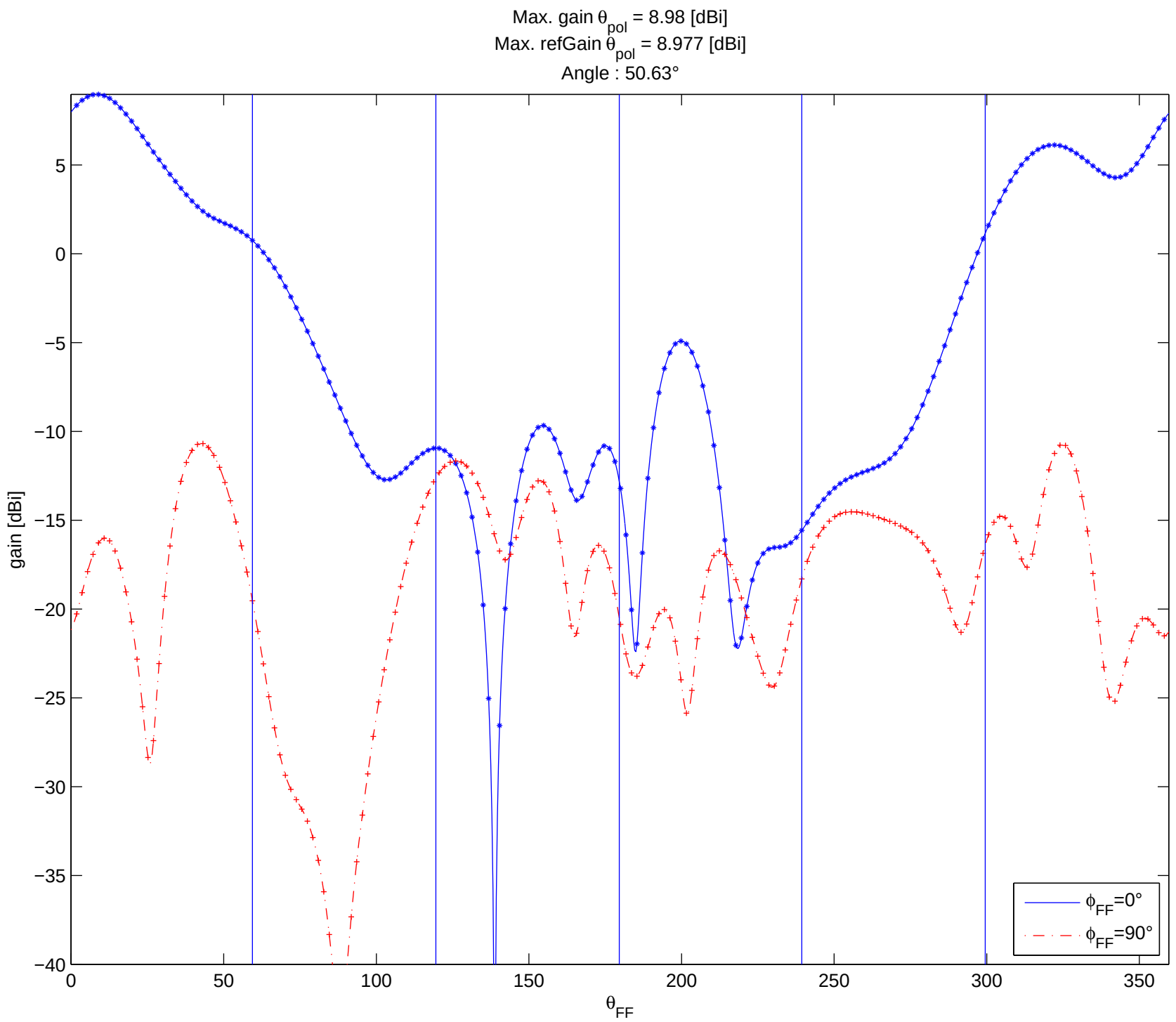

Max. gain ϕpol = 6.662 [dBi]
Max. refGain ϕpol = 6.646 [dBi]
Angle : 33.75°
gain [dBi]
θFF
ϕFF=0°
ϕFF=90°
5
0
−5
−10
−15
−20
−25
−30
−35
−40
0
50
100
150
200
250
300
350

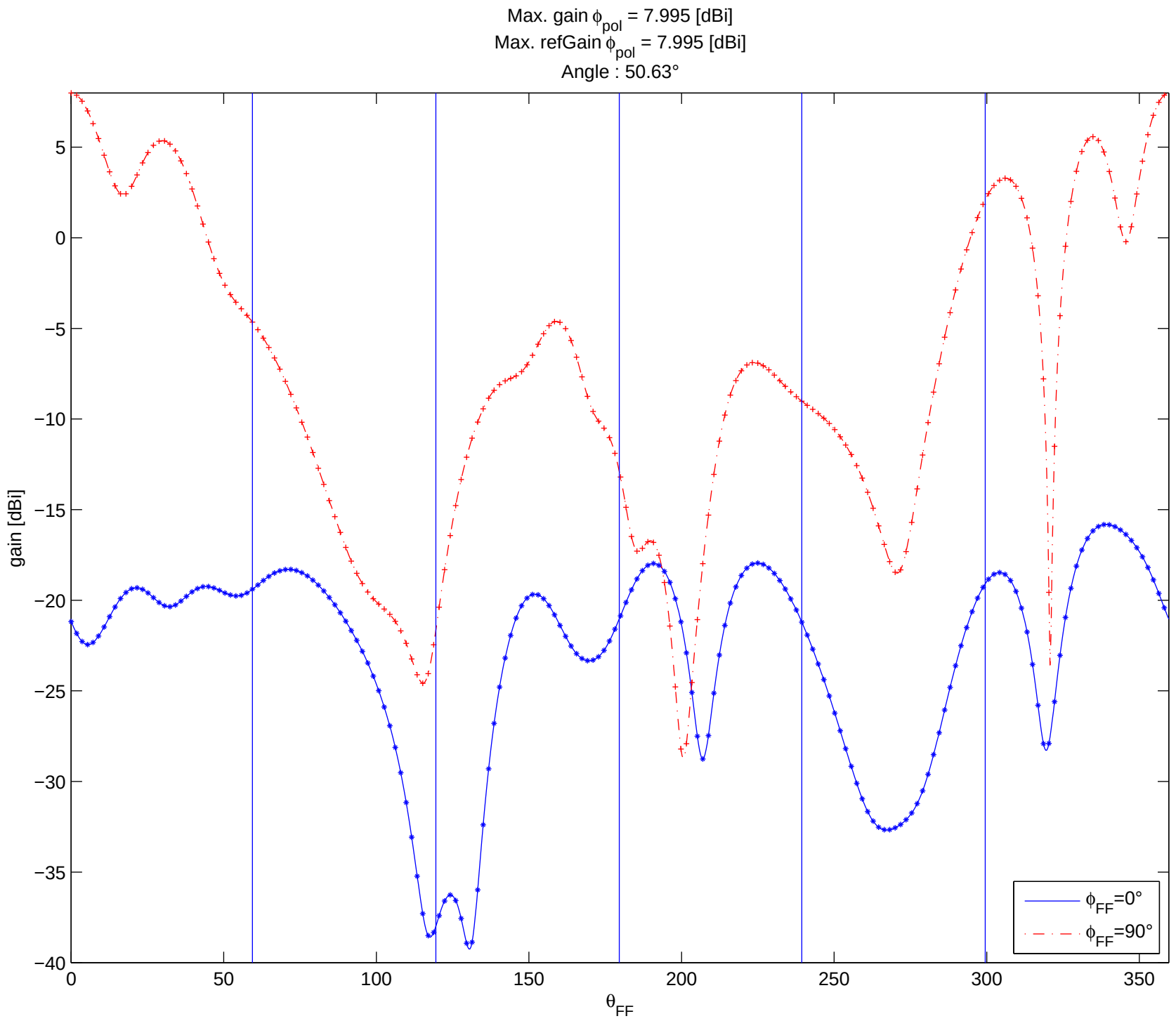

Max. gain θpol = 8.461 [dBi]
Max. refGain θpol = 8.46 [dBi]
Angle : 39.38°
gain [dBi]
θFF
5
0
−5
−10
−15
−20
−25
−30
−35
−40
0
50
100
150
200
250
300
350
ϕFF=0°
ϕFF=90°

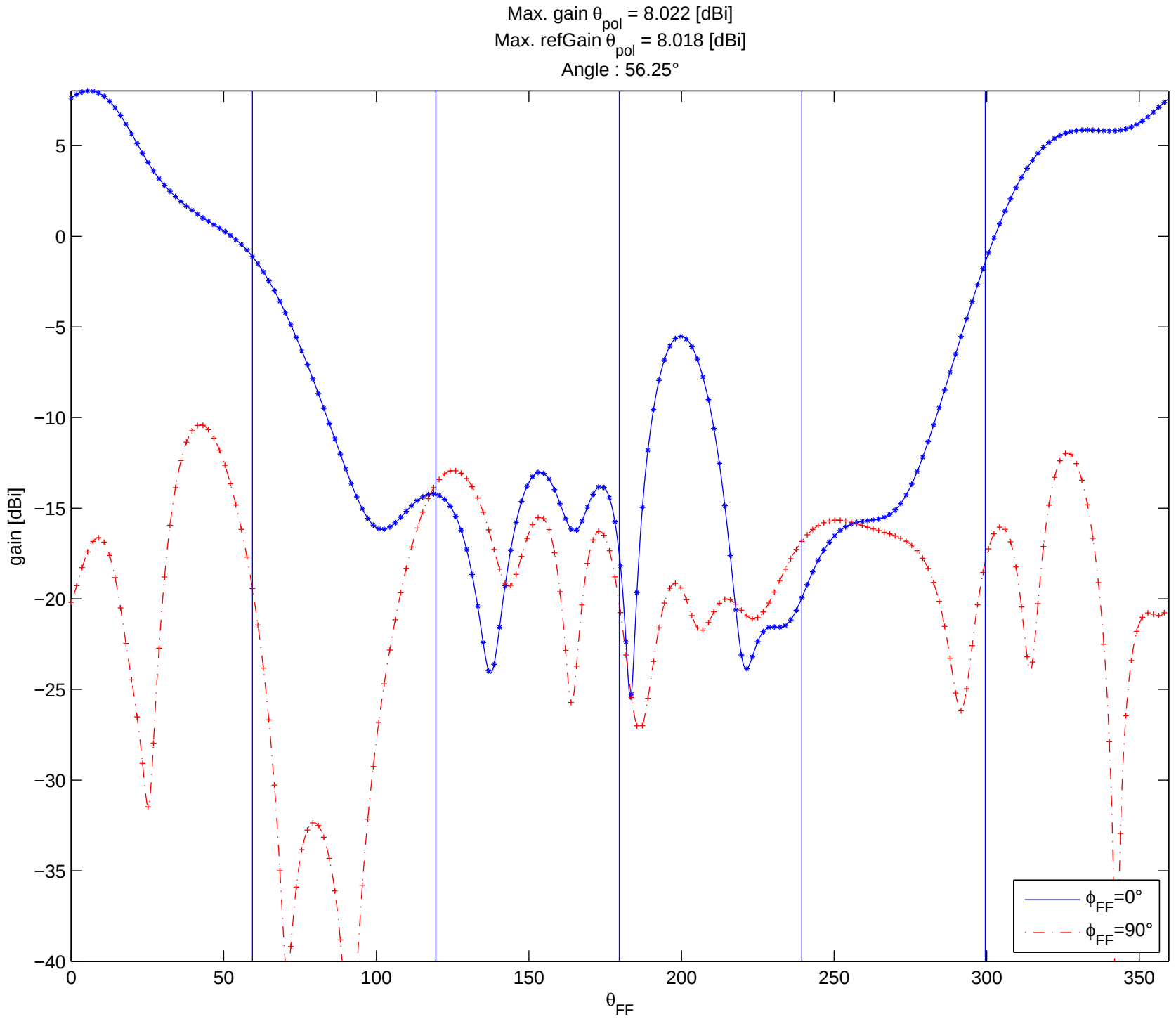

Max. gain ϕ_{pol} = 7.328 [dBi]
Max. refGain ϕ_{pol} = 7.328 [dBi]
Angle : 39.38°
gain [dBi]
θ_{FF}
ϕ_{FF}=0°
ϕ_{FF}=90°
5
0
−5
−10
−15
−20
−25
−30
−35
−40
0
50
100
150
200
250
300
350

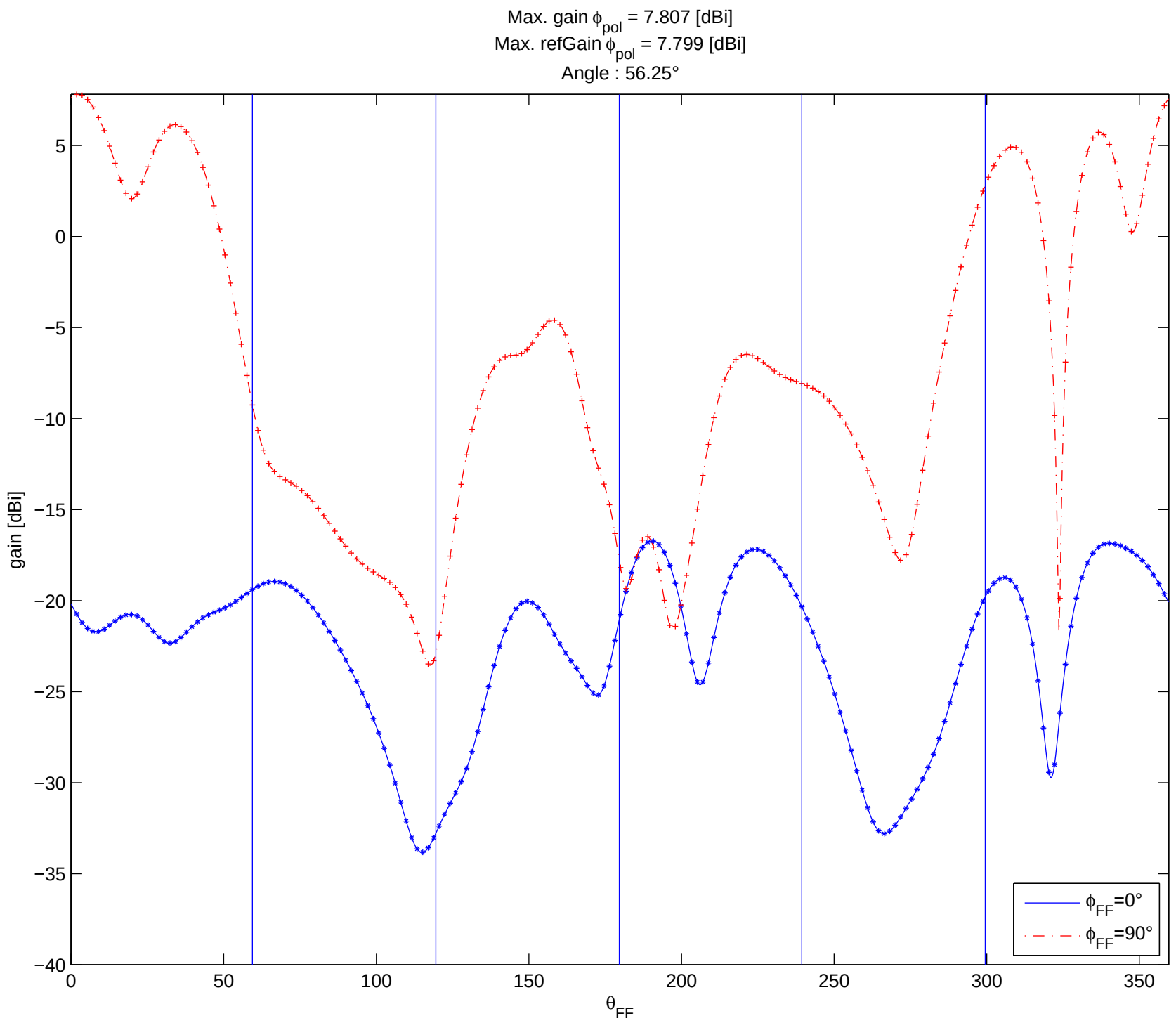

Max. gain θpol = 9.246 [dBi]
Max. refGain θpol = 9.245 [dBi]
Angle : 45°
gain [dBi]
θFF
5
0
−5
−10
−15
−20
−25
−30
−35
−40
0
50
100
150
200
250
300
350
ϕFF=0°
ϕFF=90°

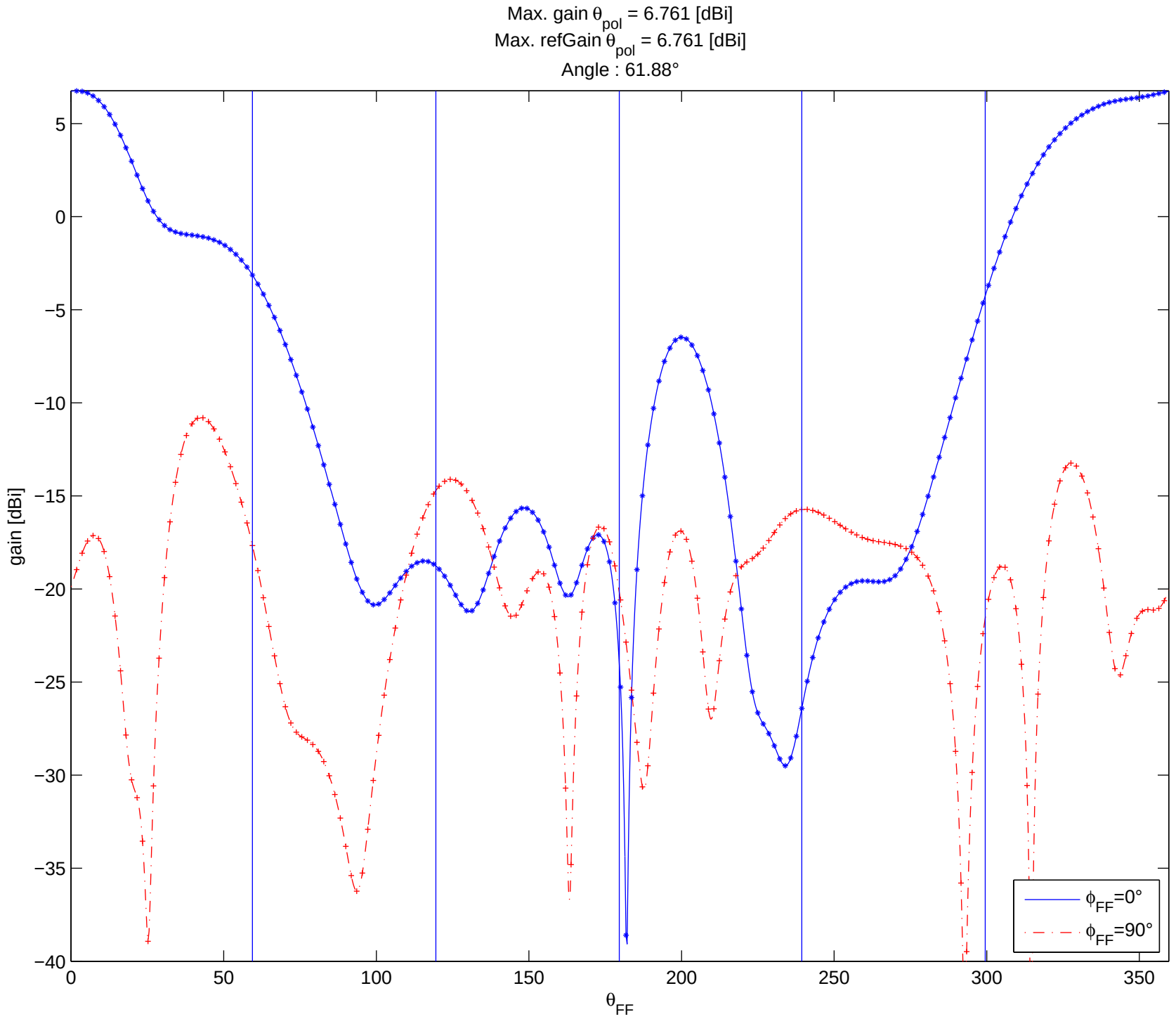

Max. gain ϕpol = 7.846 [dBi]
Max. refGain ϕpol = 7.825 [dBi]
Angle : 45°
gain [dBi]
θFF
ϕFF=0°
ϕFF=90°
5
0
−5
−10
−15
−20
−25
−30
−35
−40
0
50
100
150
200
250
300
350

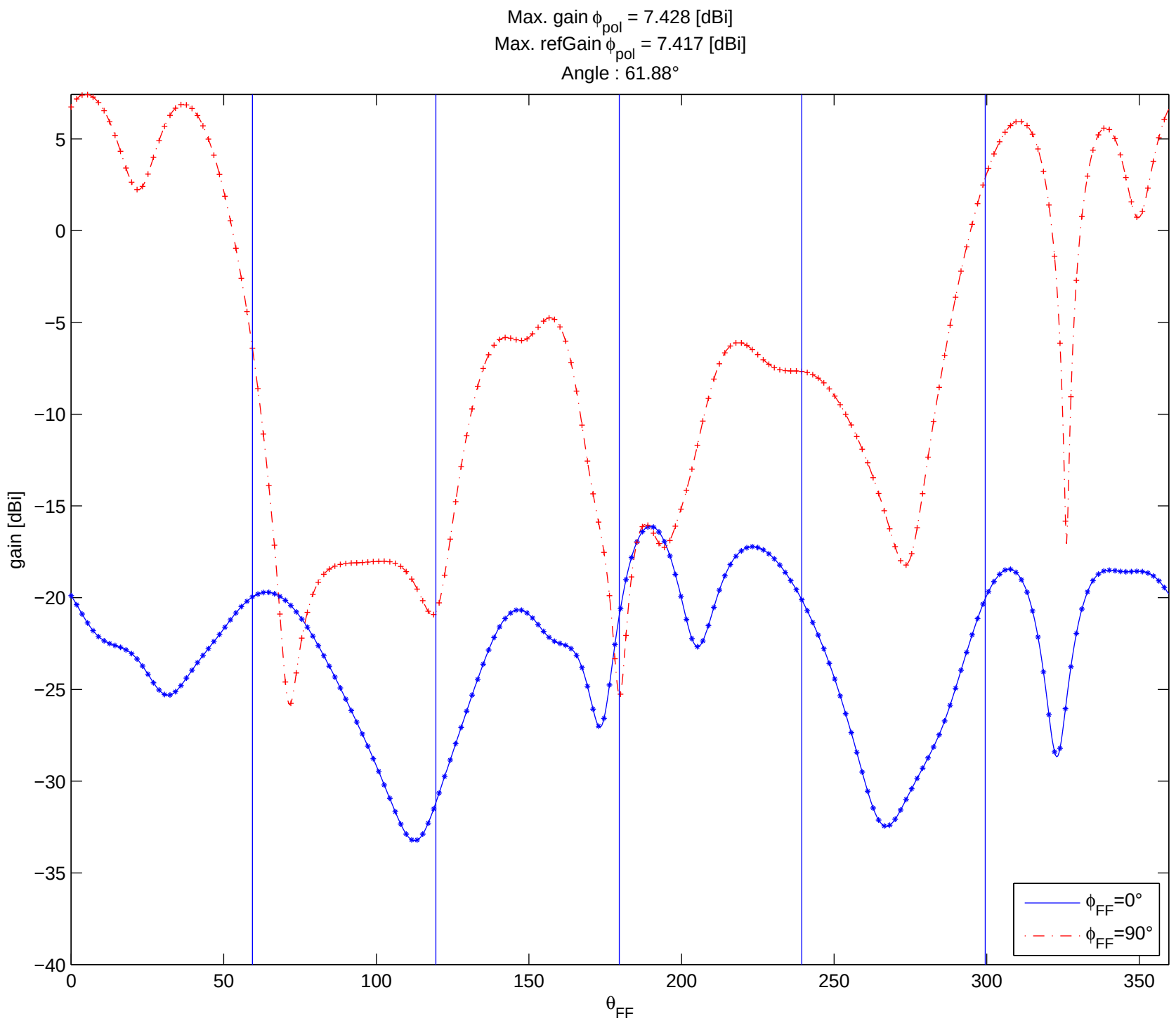

Max. gain θpol = 8.98 [dBi]
Max. refGain θpol = 8.977 [dBi]
Angle : 50.63°
gain [dBi]
θFF
5
0
−5
−10
−15
−20
−25
−30
−35
−40
0
50
100
150
200
250
300
350
ϕFF=0°
ϕFF=90°

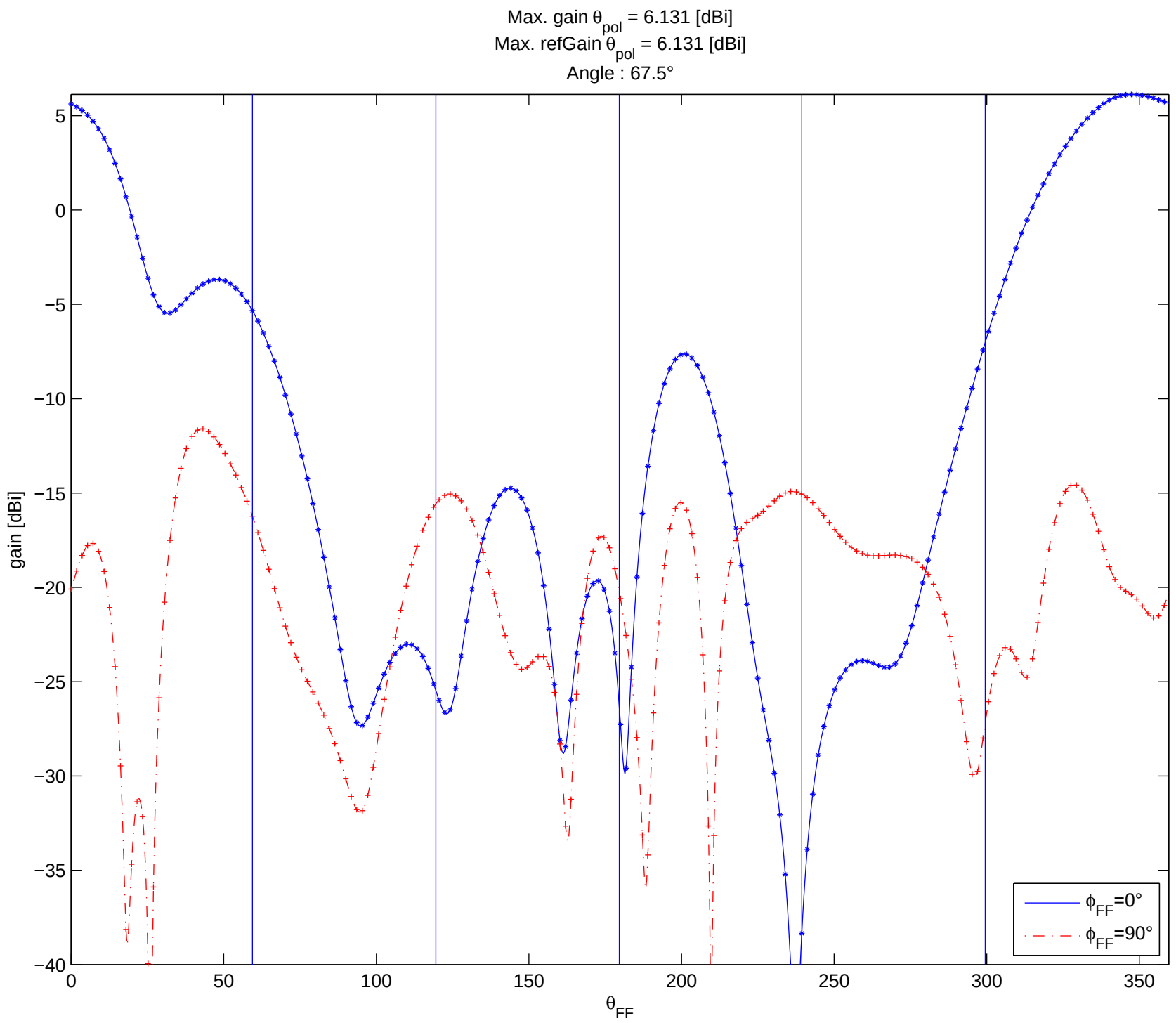

Max. gain ϕpol = 7.995 [dBi]
Max. refGain ϕpol = 7.995 [dBi]
Angle : 50.63°
gain [dBi]
θFF
ϕFF=0°
ϕFF=90°
5
0
−5
−10
−15
−20
−25
−30
−35
−40
0
50
100
150
200
250
300
350

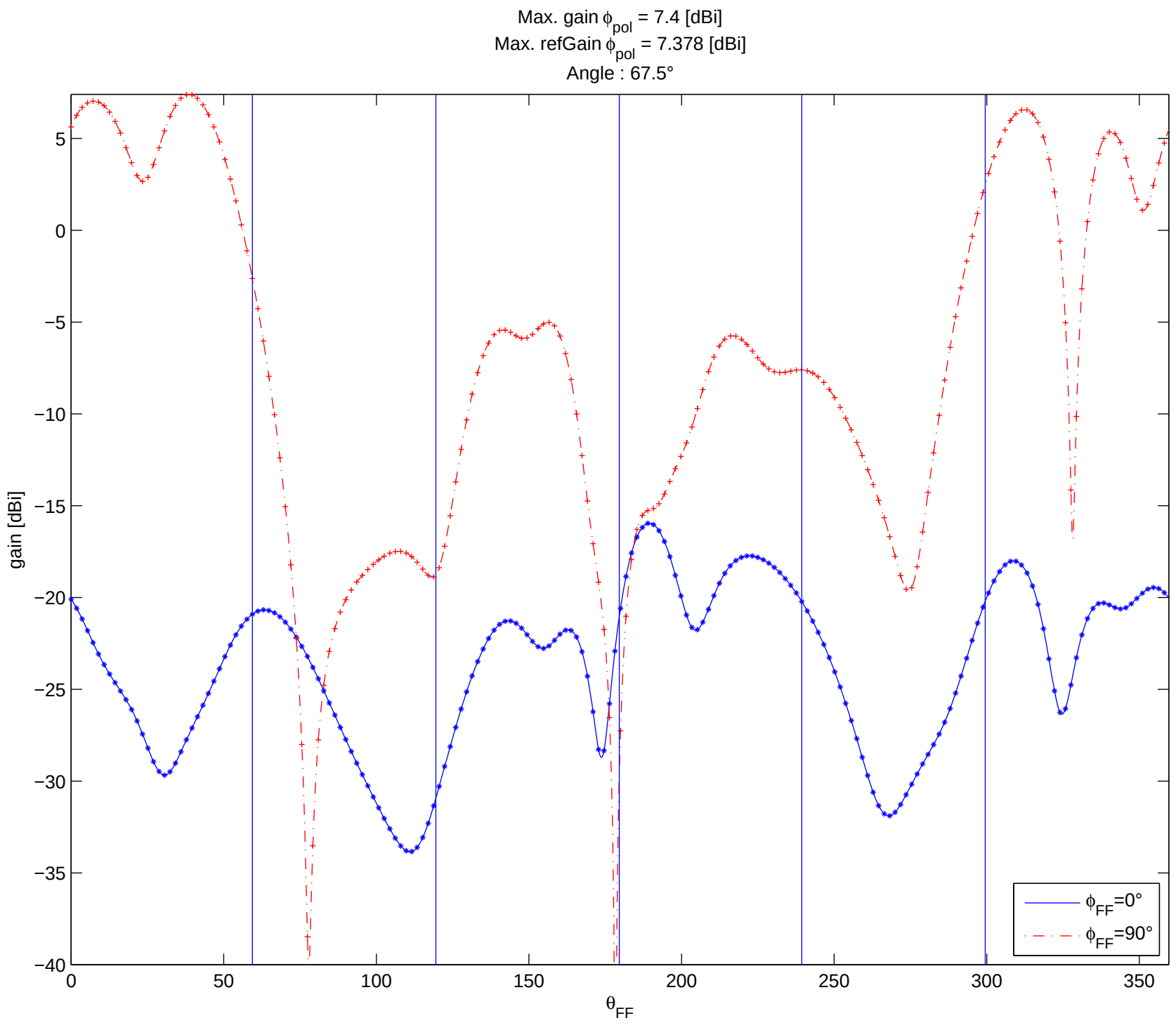

Max. gain θpol = 8.022 [dBi]
Max. refGain θpol = 8.018 [dBi]
Angle : 56.25°
gain [dBi]
θFF
5
0
−5
−10
−15
−20
−25
−30
−35
−40
0
50
100
150
200
250
300
350
ϕFF=0°
ϕFF=90°

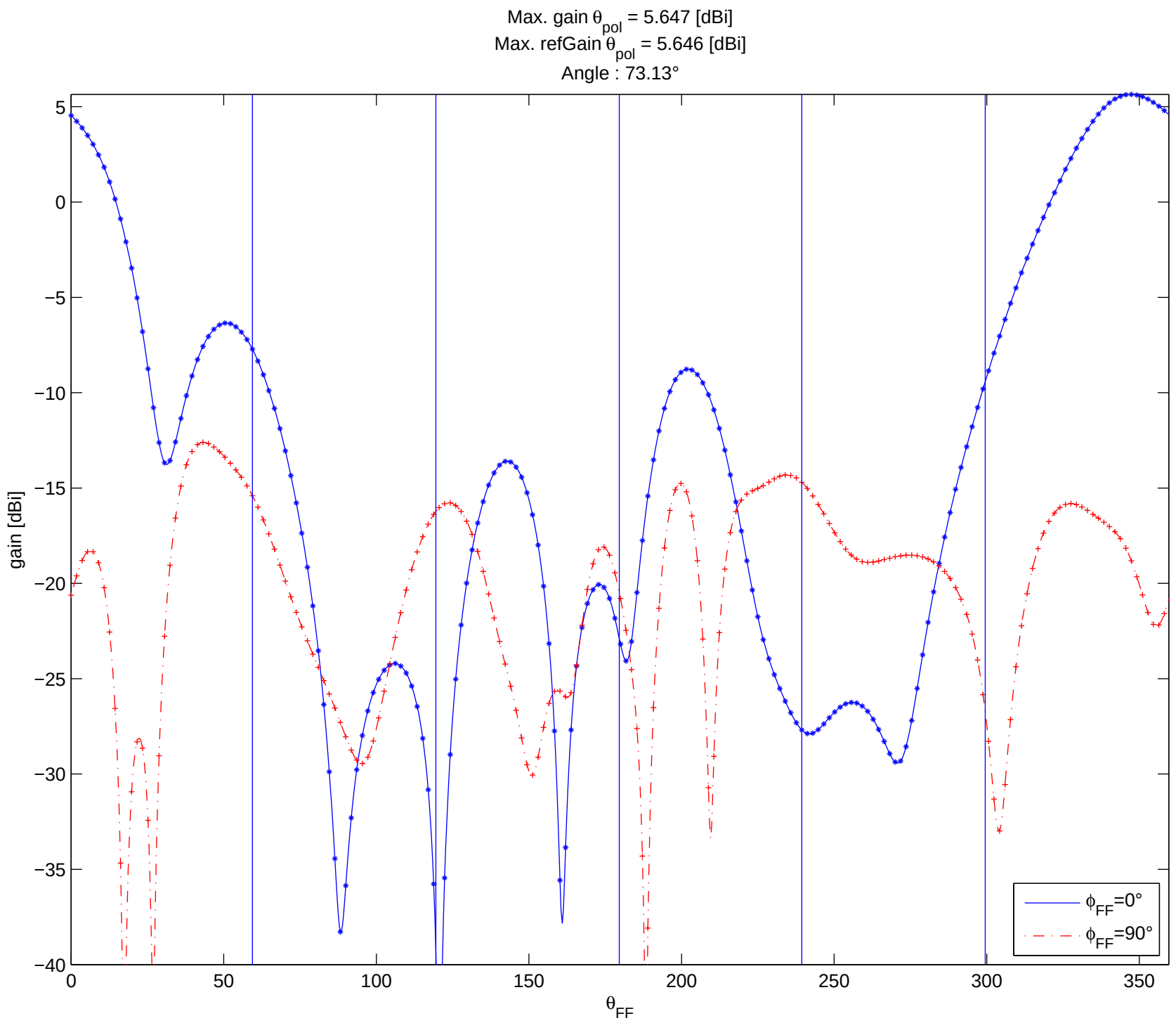

Max. gain ϕ_{pol} = 7.807 [dBi]
Max. refGain ϕ_{pol} = 7.799 [dBi]
Angle : 56.25°
gain [dBi]
θ_{FF}
ϕ_{FF}=0°
ϕ_{FF}=90°
5
0
−5
−10
−15
−20
−25
−30
−35
−40
0
50
100
150
200
250
300
350

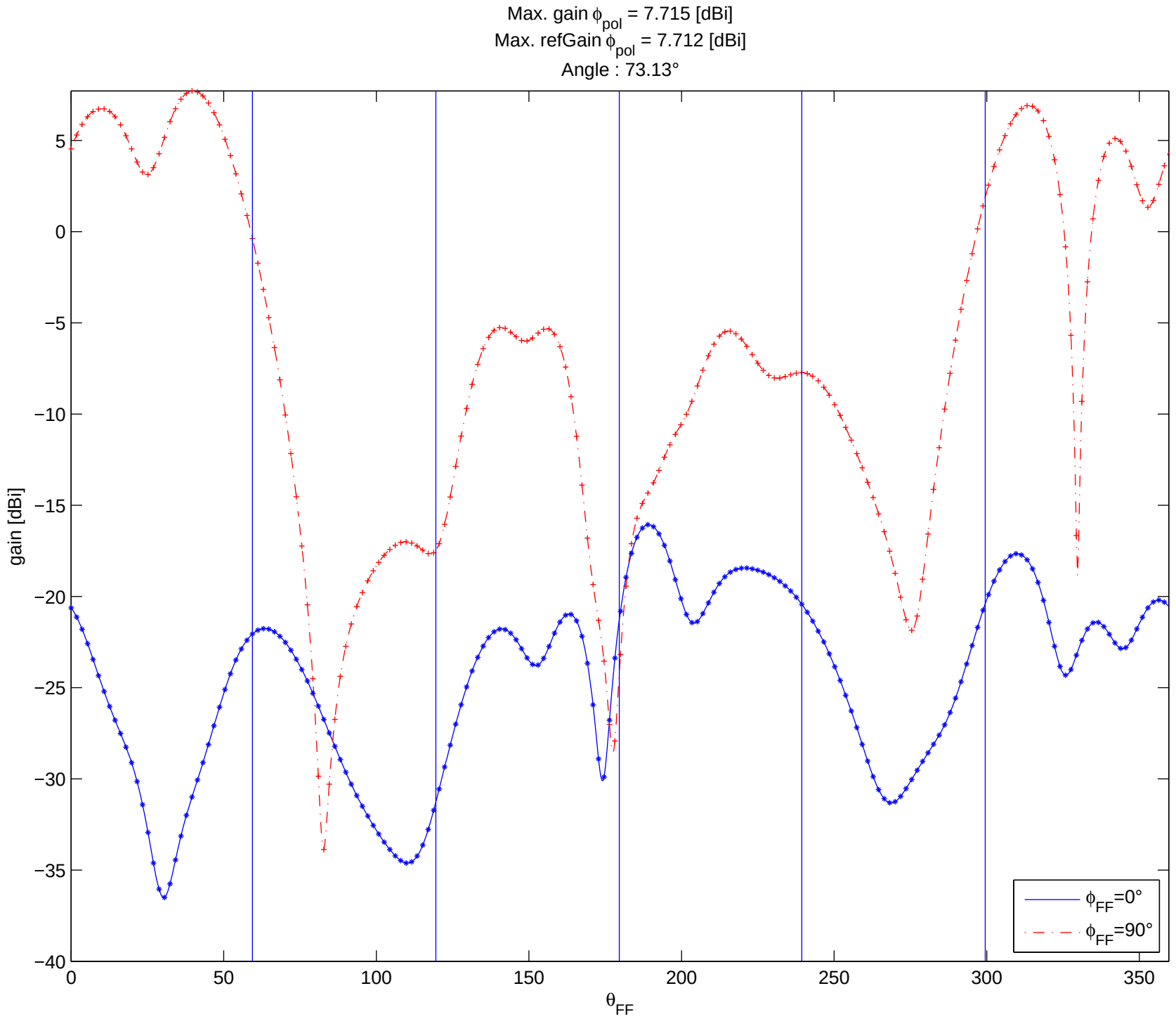

Max. gain θpol = 6.761 [dBi]
Max. refGain θpol = 6.761 [dBi]
Angle : 61.88°
gain [dBi]
θFF
5
0
−5
−10
−15
−20
−25
−30
−35
−40
0
50
100
150
200
250
300
350
ϕFF=0°
ϕFF=90°

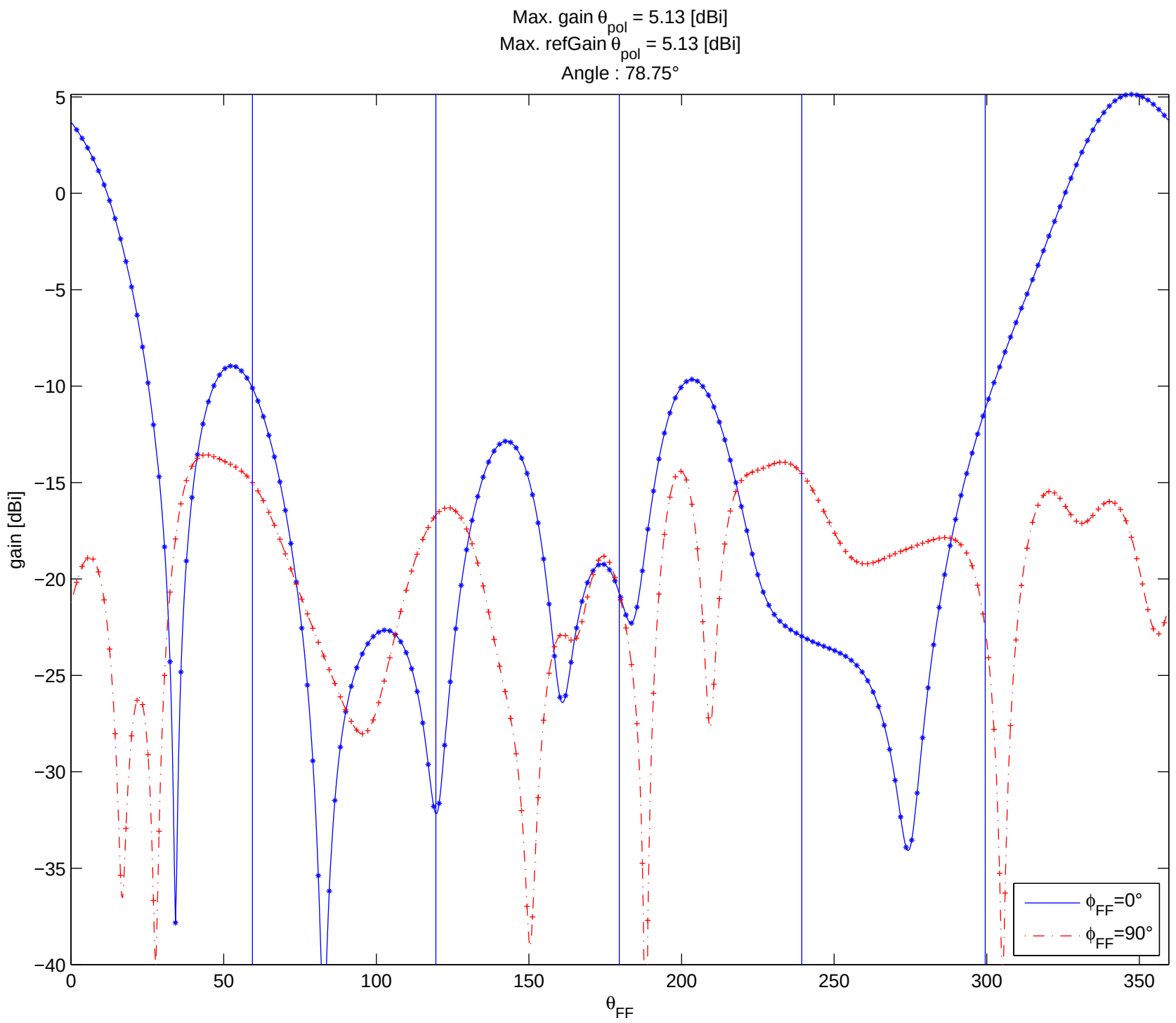

Max. gain ϕpol = 7.428 [dBi]
Max. refGain ϕpol = 7.417 [dBi]
Angle : 61.88°
gain [dBi]
θFF
ϕFF=0°
ϕFF=90°
5
0
−5
−10
−15
−20
−25
−30
−35
−40
0
50
100
150
200
250
300
350

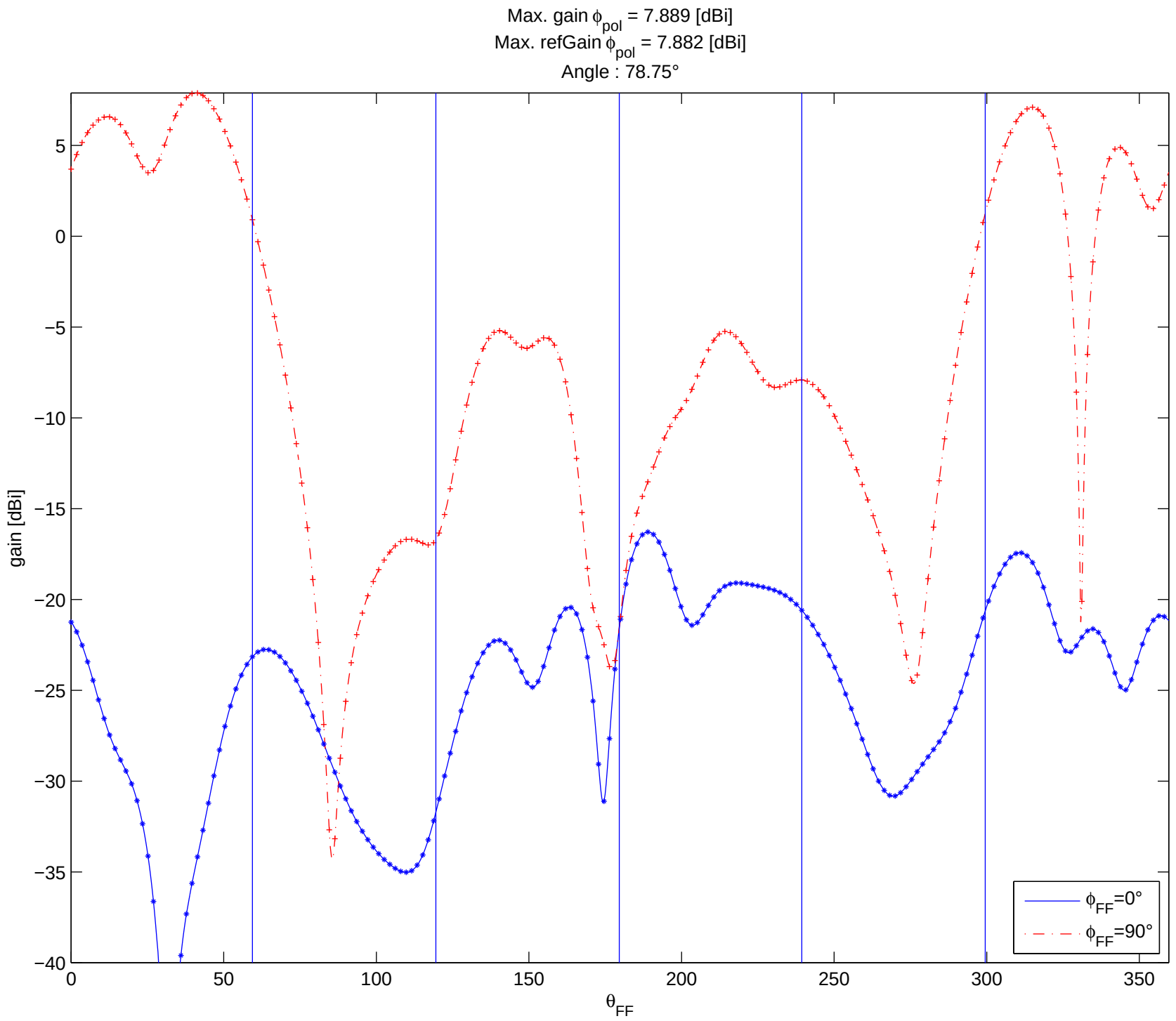

Max. gain θpol = 6.131 [dBi]
Max. refGain θpol = 6.131 [dBi]
Angle : 67.5°
gain [dBi]
θFF
5
0
−5
−10
−15
−20
−25
−30
−35
−40
0
50
100
150
200
250
300
350
ϕFF=0°
ϕFF=90°

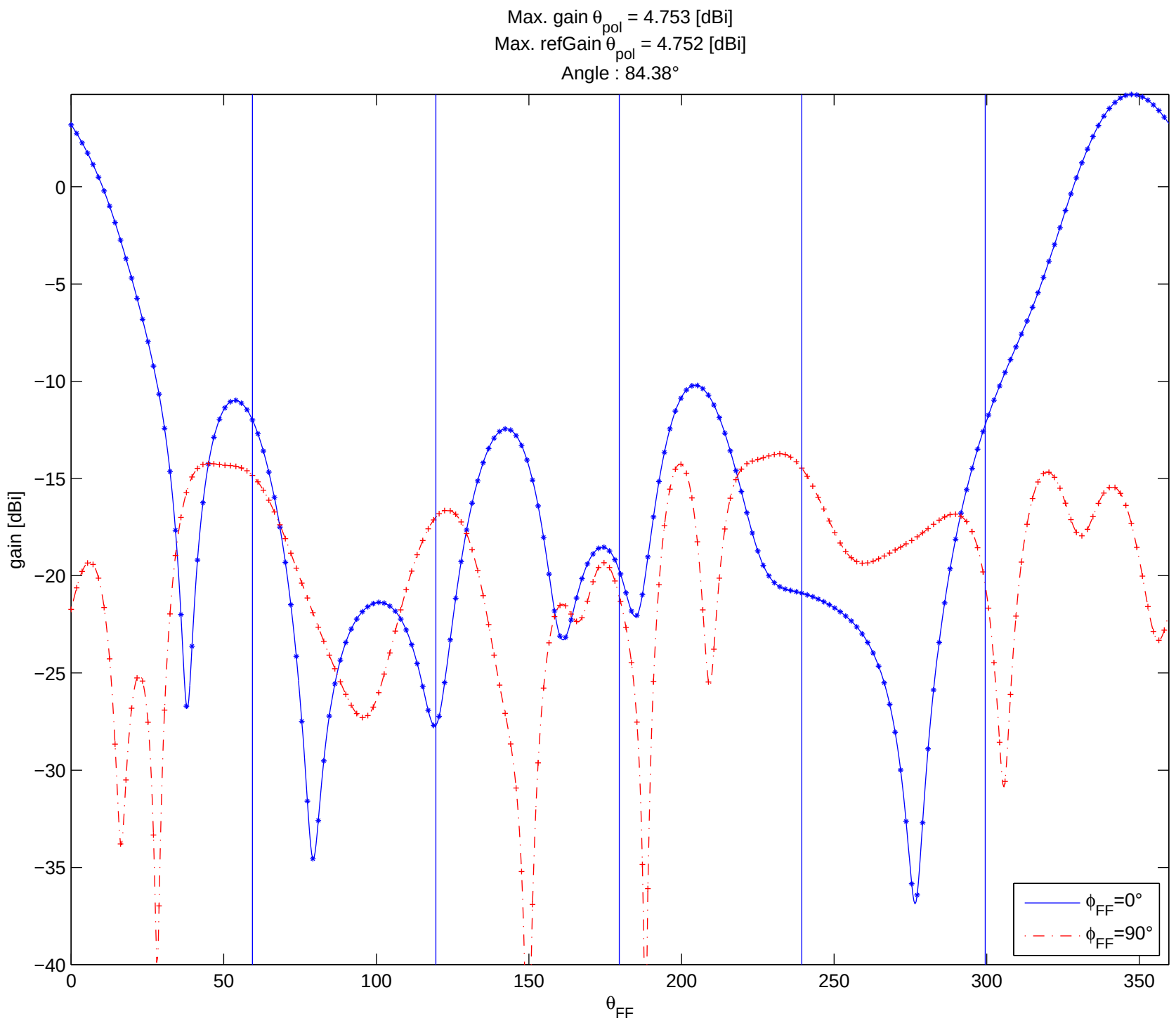

Max. gain ϕ_{pol} = 7.4 [dBi]
Max. refGain ϕ_{pol} = 7.378 [dBi]
Angle : 67.5°
gain [dBi]
θ_{FF}
ϕ_{FF}=0°
ϕ_{FF}=90°
5
0
−5
−10
−15
−20
−25
−30
−35
−40
0
50
100
150
200
250
300
350

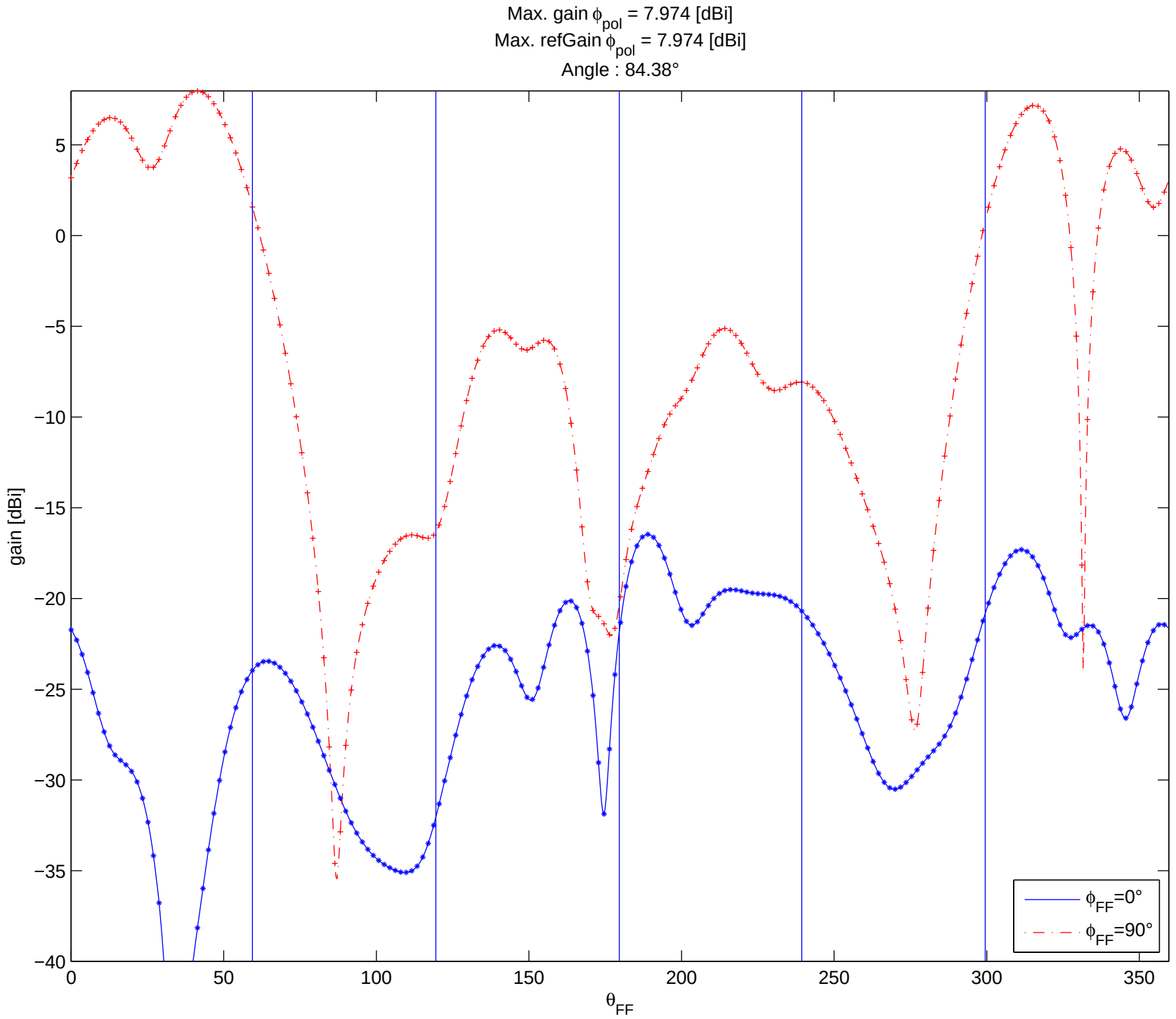

Max. gain θpol = 5.647 [dBi]
Max. refGain θpol = 5.646 [dBi]
Angle : 73.13°
gain [dBi]
θFF
5
0
−5
−10
−15
−20
−25
−30
−35
−40
0
50
100
150
200
250
300
350
ϕFF=0°
ϕFF=90°

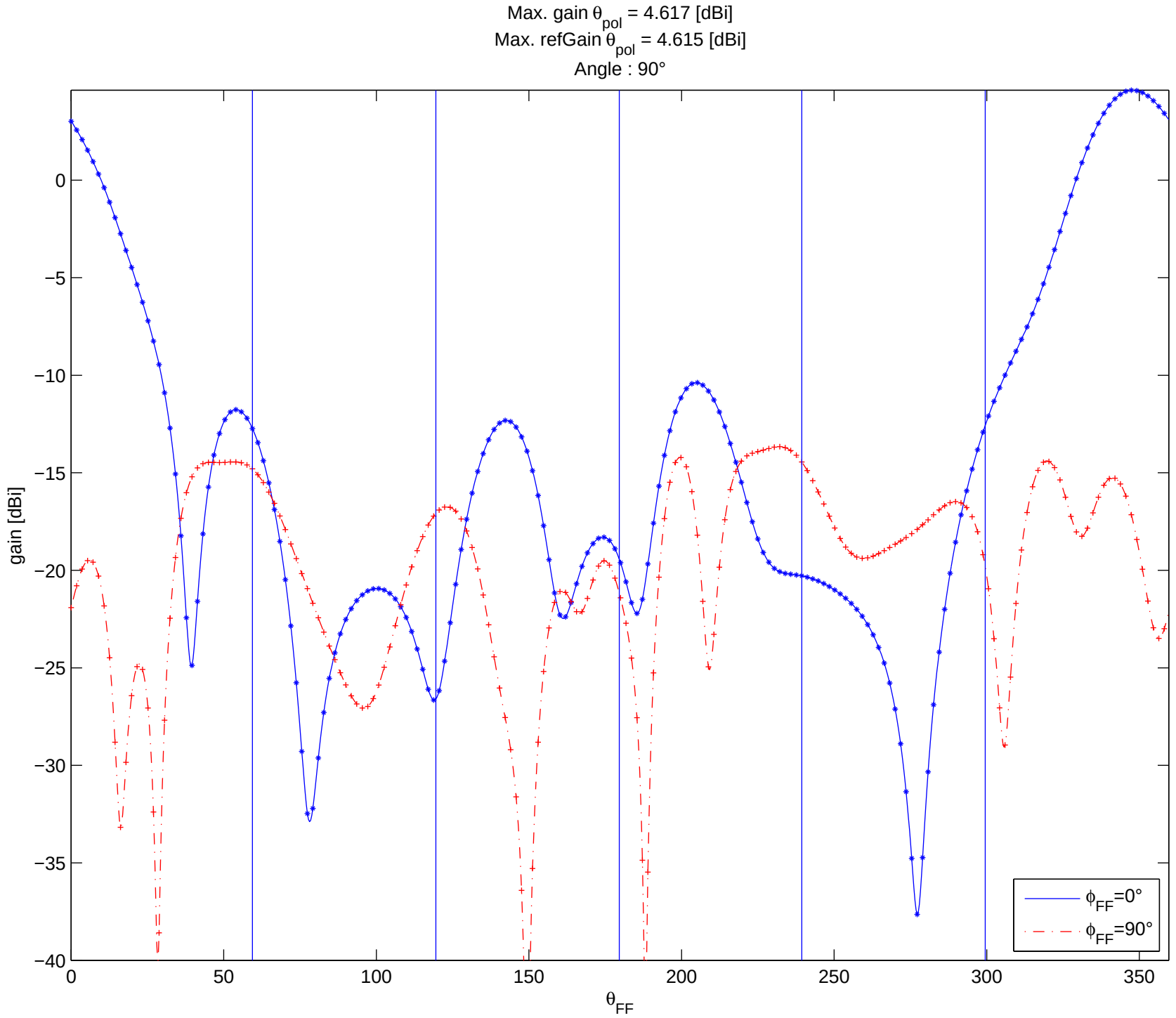

Max. gain ϕpol = 7.715 [dBi]
Max. refGain ϕpol = 7.712 [dBi]
Angle : 73.13°
gain [dBi]
θFF
ϕFF=0°
ϕFF=90°
5
0
−5
−10
−15
−20
−25
−30
−35
−40
0
50
100
150
200
250
300
350

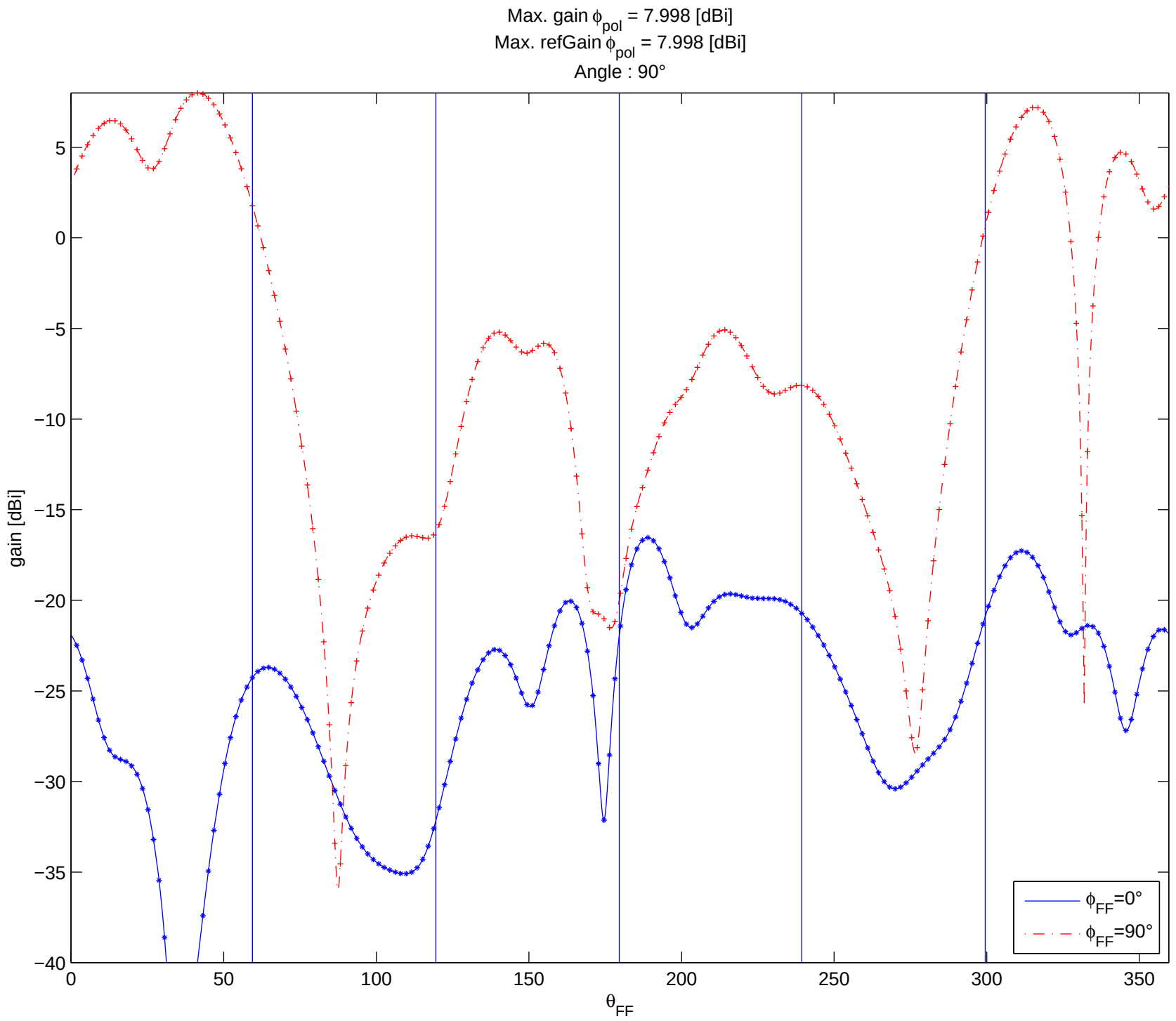

Max. gain θpol = 5.13 [dBi]
Max. refGain θpol = 5.13 [dBi]
Angle : 78.75°
gain [dBi]
θFF
5
0
−5
−10
−15
−20
−25
−30
−35
−40
0
50
100
150
200
250
300
350
ϕFF=0°
ϕFF=90°

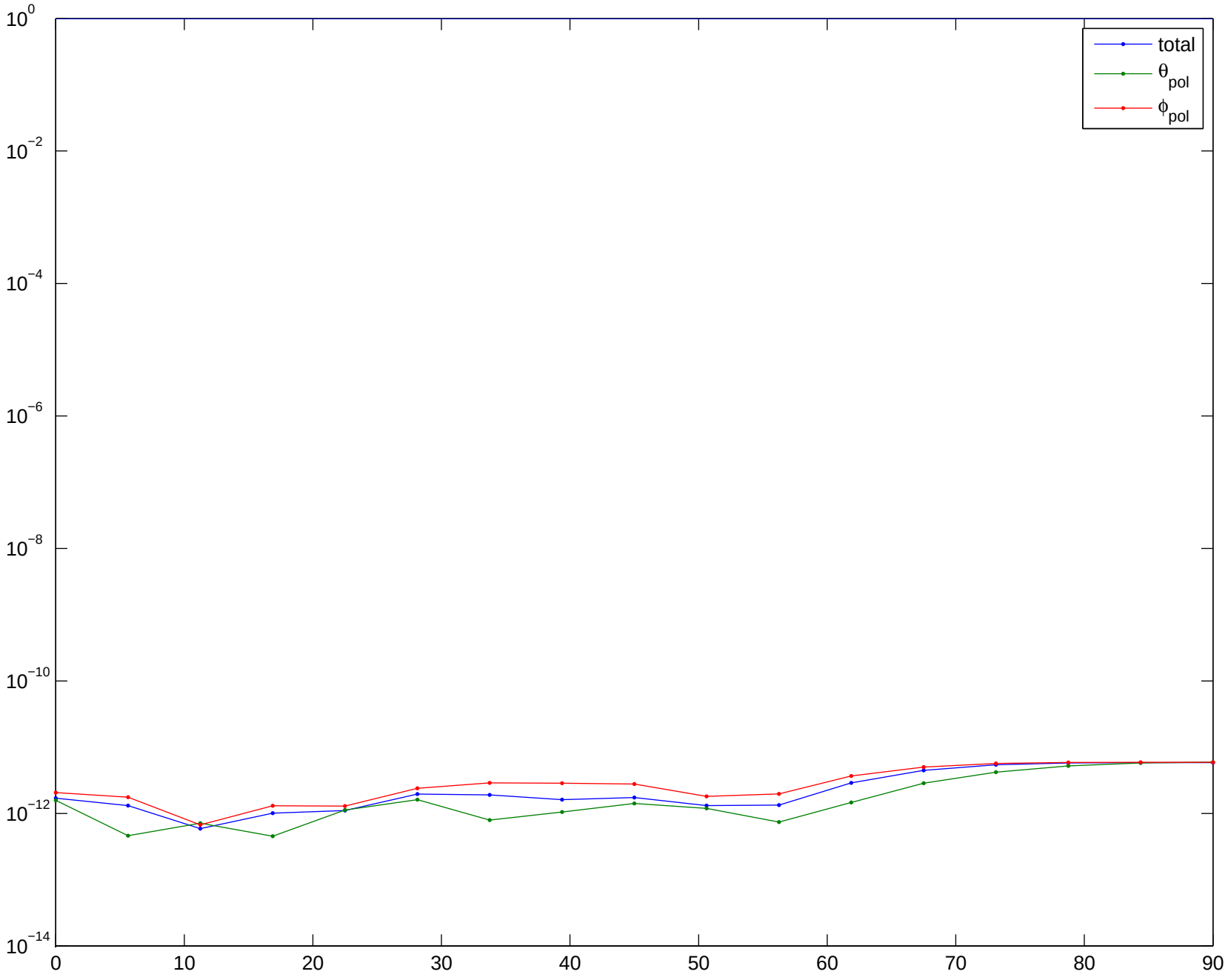

Max. gain ϕ_{pol} = 7.889 [dBi]
Max. refGain ϕ_{pol} = 7.882 [dBi]
Angle : 78.75°
gain [dBi]
θ_{FF}
ϕ_{FF}=0°
ϕ_{FF}=90°
5
0
−5
−10
−15
−20
−25
−30
−35
−40
0
50
100
150
200
250
300
350

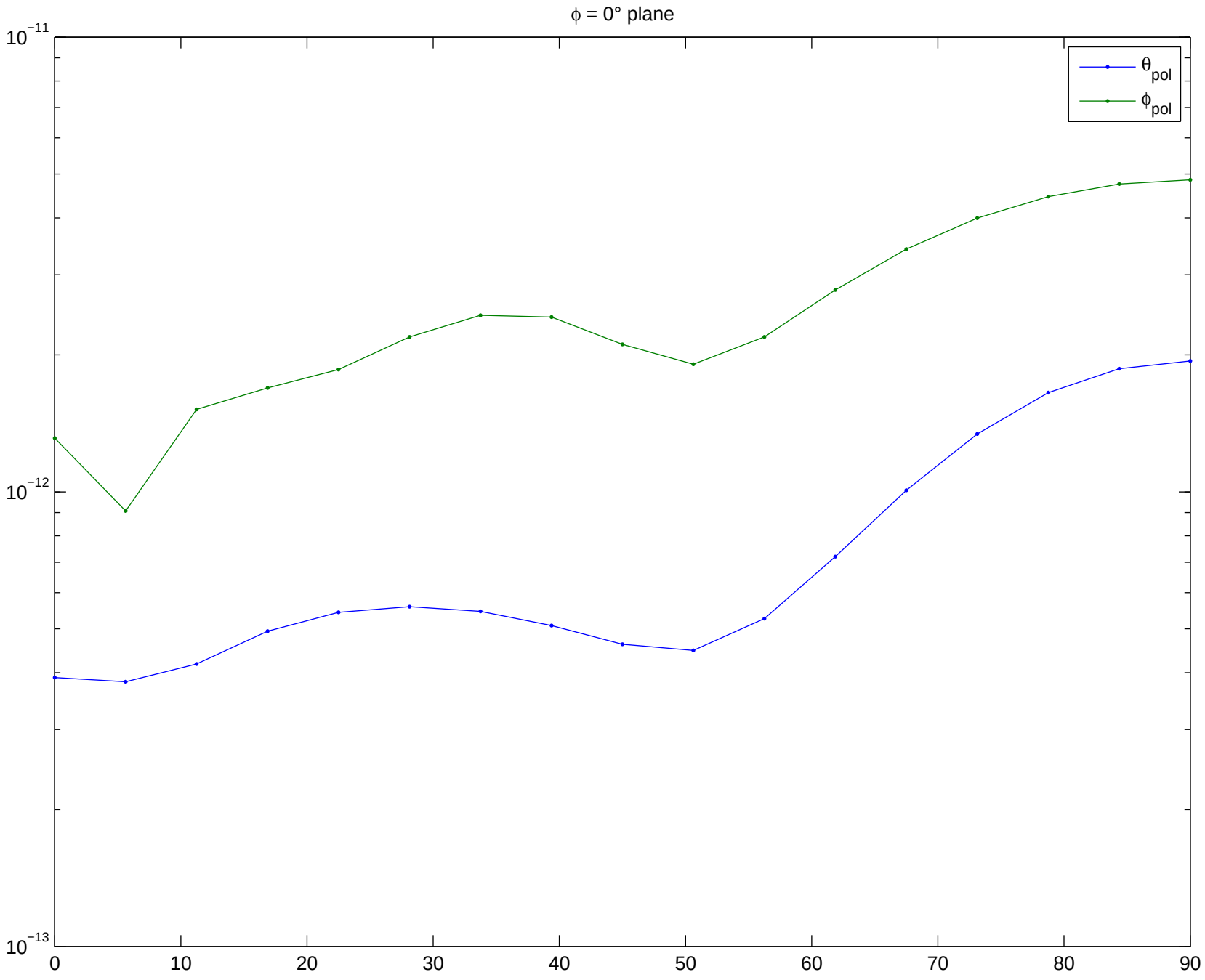

Max. gain θpol = 4.753 [dBi]
Max. refGain θpol = 4.752 [dBi]
Angle : 84.38°
gain [dBi]
θFF
0
−5
−10
−15
−20
−25
−30
−35
−40
0
50
100
150
200
250
300
350
ϕFF=0°
ϕFF=90°

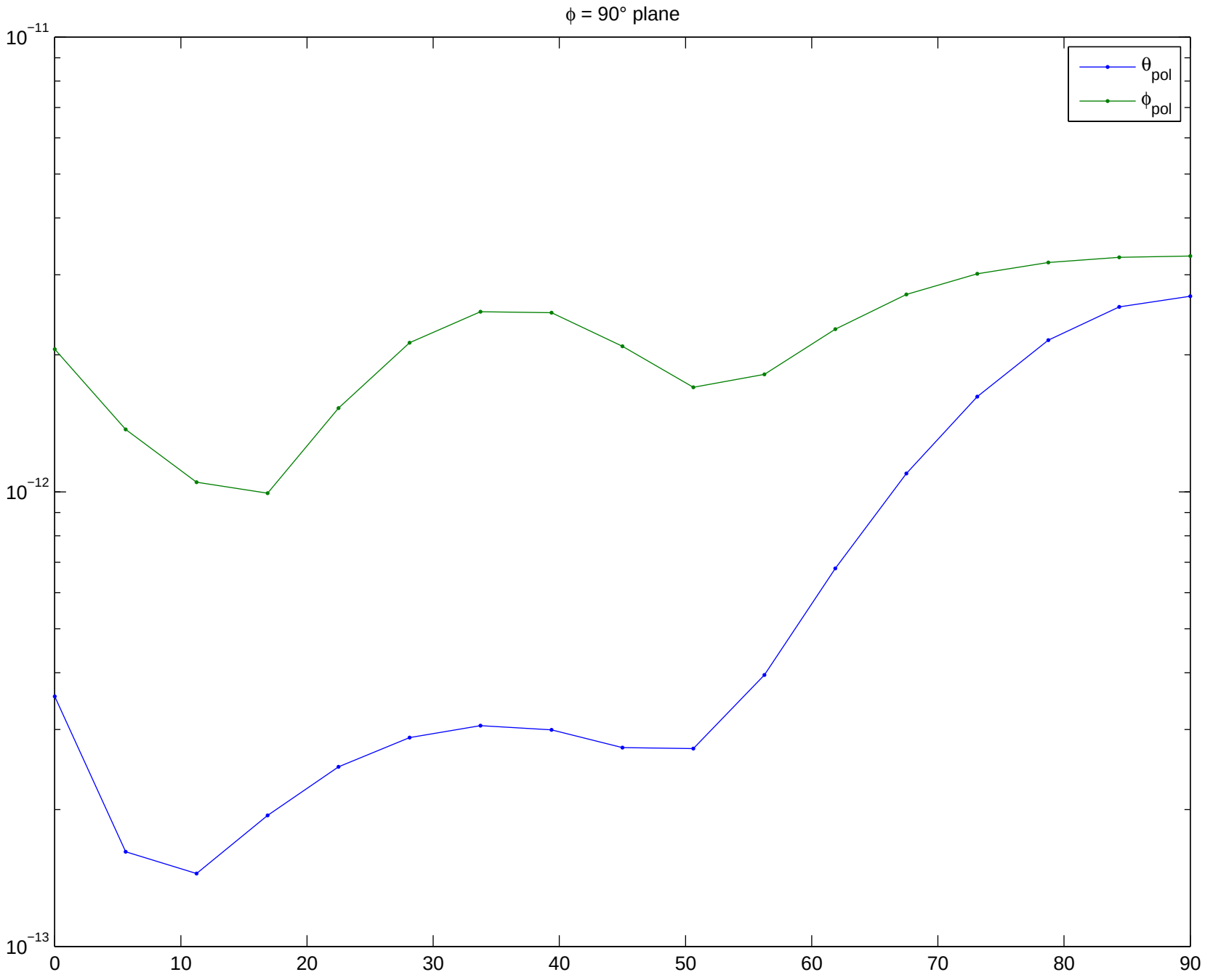

Max. gain ϕ_{pol} = 7.974 [dBi]
Max. refGain ϕ_{pol} = 7.974 [dBi]
Angle : 84.38°
gain [dBi]
θ_{FF}
ϕ_{FF}=0°
ϕ_{FF}=90°
5
0
−5
−10
−15
−20
−25
−30
−35
−40
0
50
100
150
200
250
300
350


Max. gain θpol = 4.617 [dBi]
Max. refGain θpol = 4.615 [dBi]
Angle : 90°
gain [dBi]
θFF
0
−5
−10
−15
−20
−25
−30
−35
−40
0
50
100
150
200
250
300
350
ϕFF=0°
ϕFF=90°


Max. gain ϕpol = 7.998 [dBi]
Max. refGain ϕpol = 7.998 [dBi]
Angle : 90°
gain [dBi]
θFF
ϕFF=0°
ϕFF=90°
5
0
−5
−10
−15
−20
−25
−30
−35
−40
0
50
100
150
200
250
300
350


10^{0}
10^{-2}
10^{-4}
10^{-6}
10^{-8}
10^{-10}
10^{-12}
10^{-14}
0
10
20
30
40
50
60
70
80
90
total
θ_{pol}
ϕ_{pol}


ϕ = 0° plane
10^{-11}
10^{-12}
10^{-13}
0
10
20
30
40
50
60
70
80
90
θ_{pol}
ϕ_{pol}


ϕ = 90° plane
10^{-11}
10^{-12}
10^{-13}
0
10
20
30
40
50
60
70
80
90
θ_{pol}
ϕ_{pol}