

Report for Broadcom

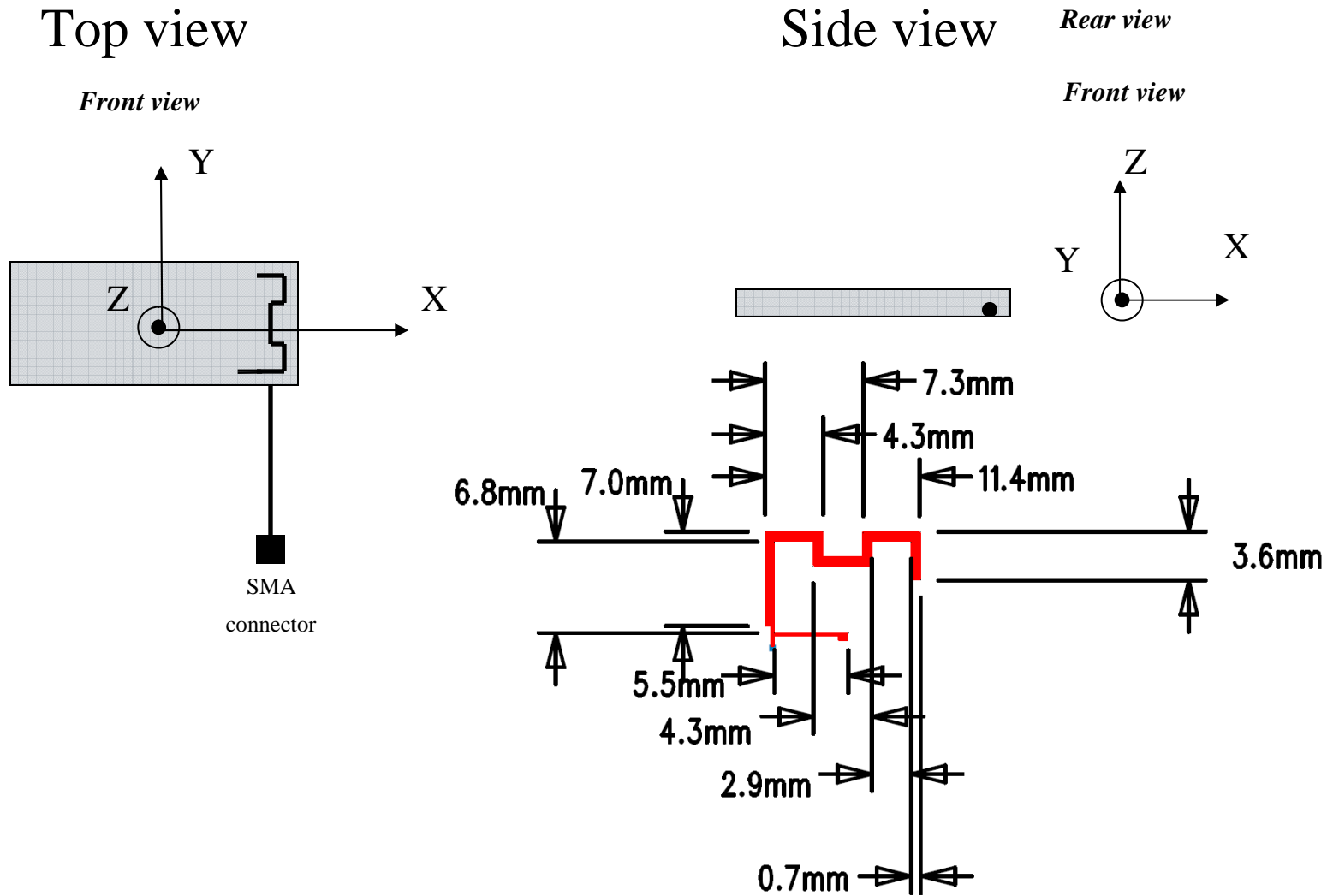
By Alfred Grau

UCI CENTER FOR RF DESIGN AND CHARACTERIZATION

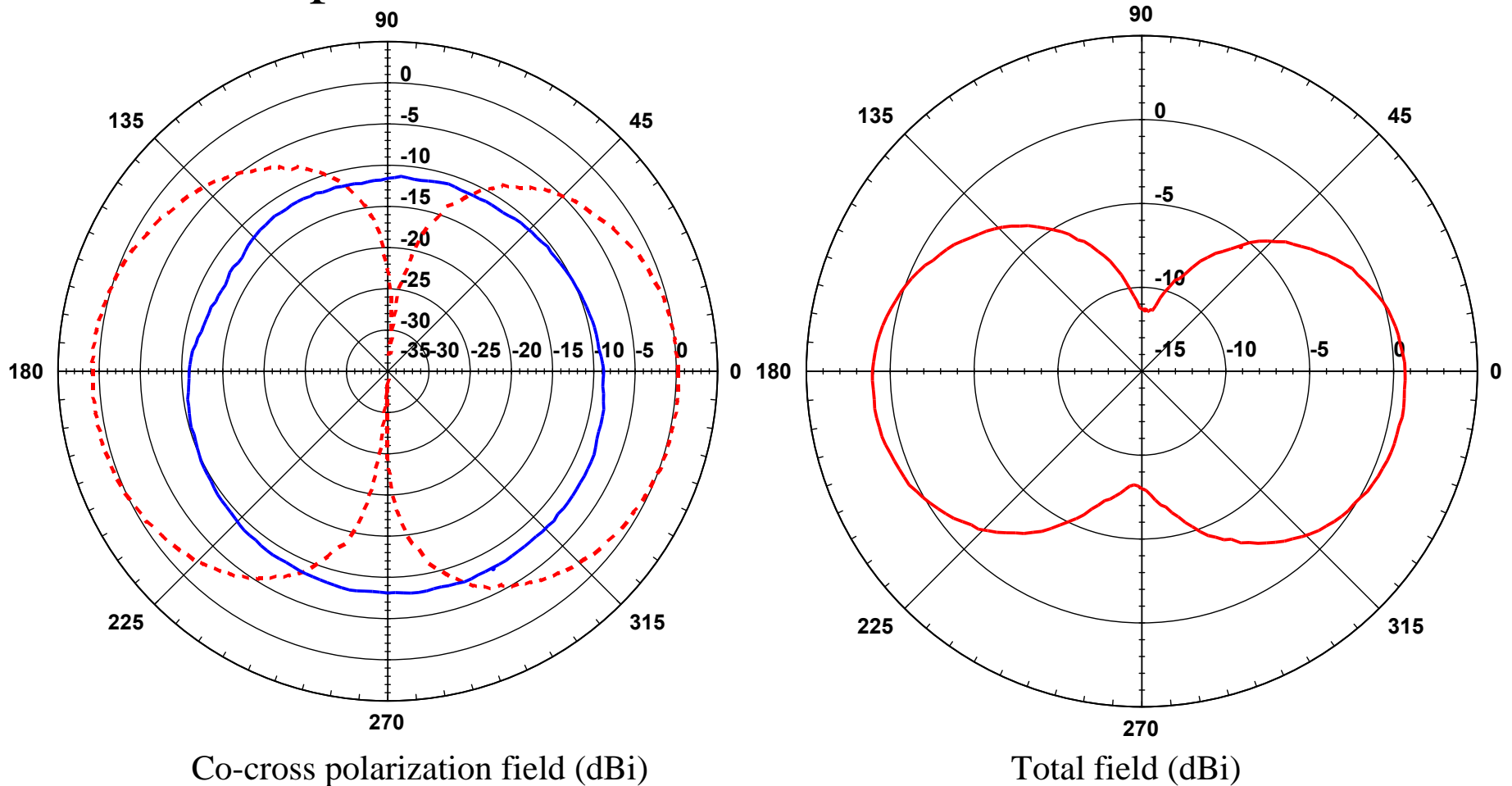
Tested Products.

- Antenna 1: integrated antenna.
 - Frequency = 2.402GHz.
 - Frequency = 2.441GHz.
 - Frequency = 2.480GHz.
- Antenna gina: 1.87dBi (MAX)

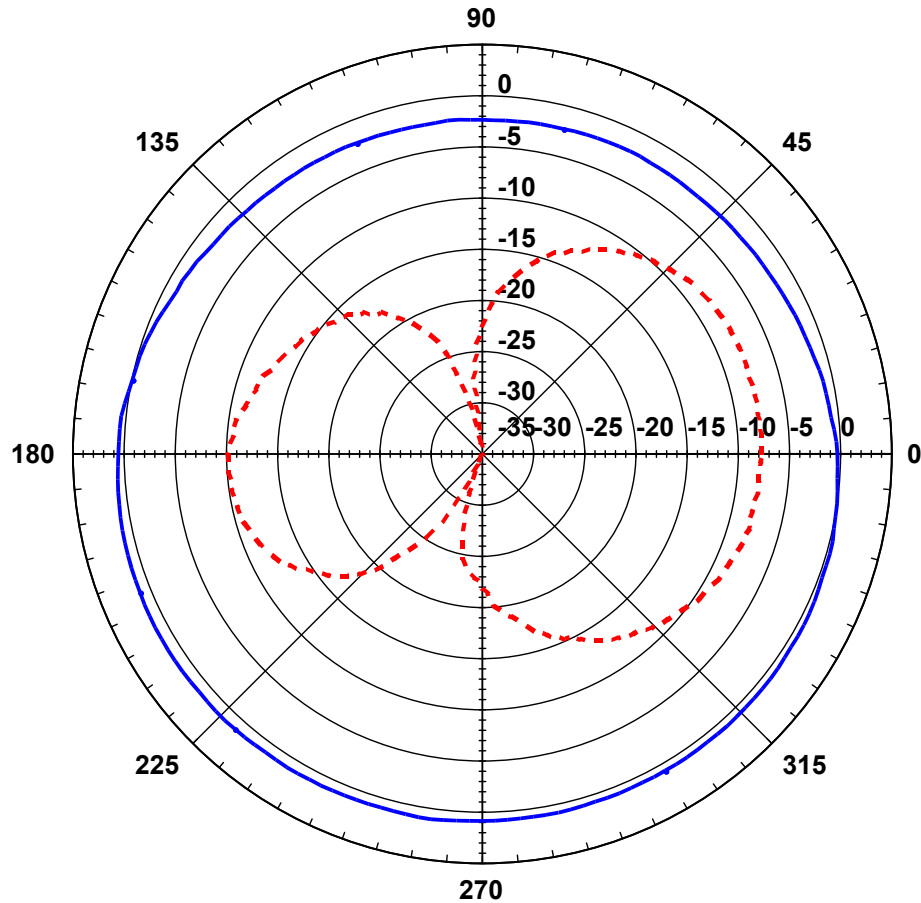
Coordinate System Reference: Antenna 1.



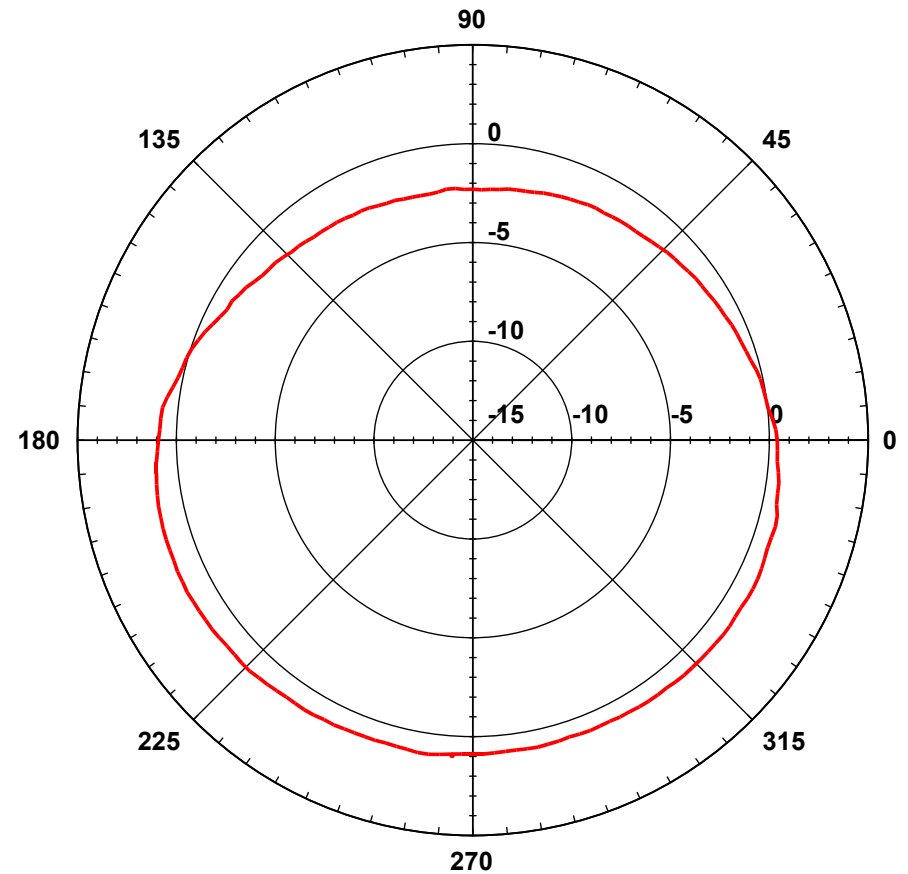
Radiation pattern: Antenna 1. XZ Plane at $f = 2.402\text{GHz}$



Radiation pattern: Antenna 1. YZ Plane at $f = 2.402\text{GHz}$



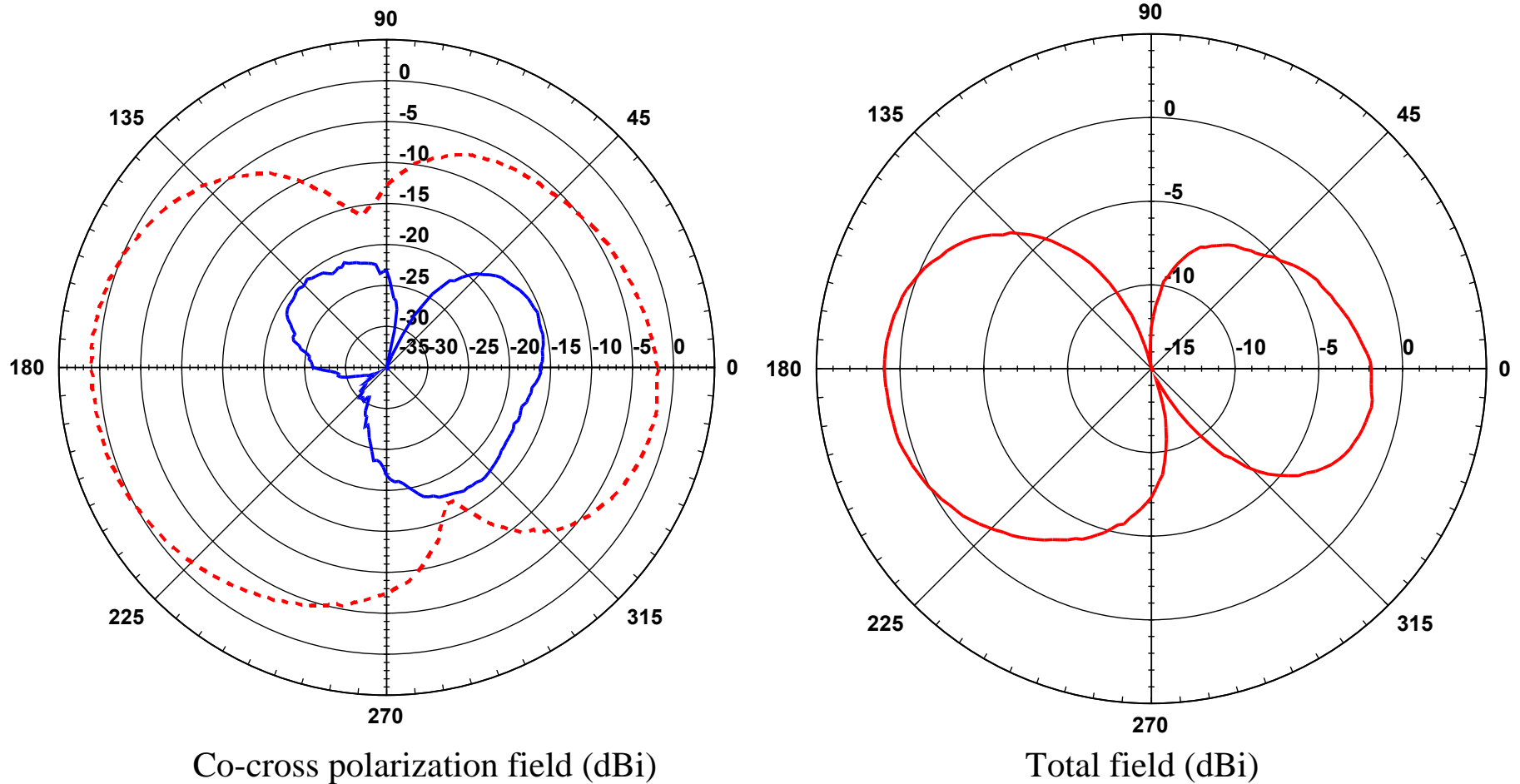
Co-cross polarization field (dBi)



Total field (dBi)

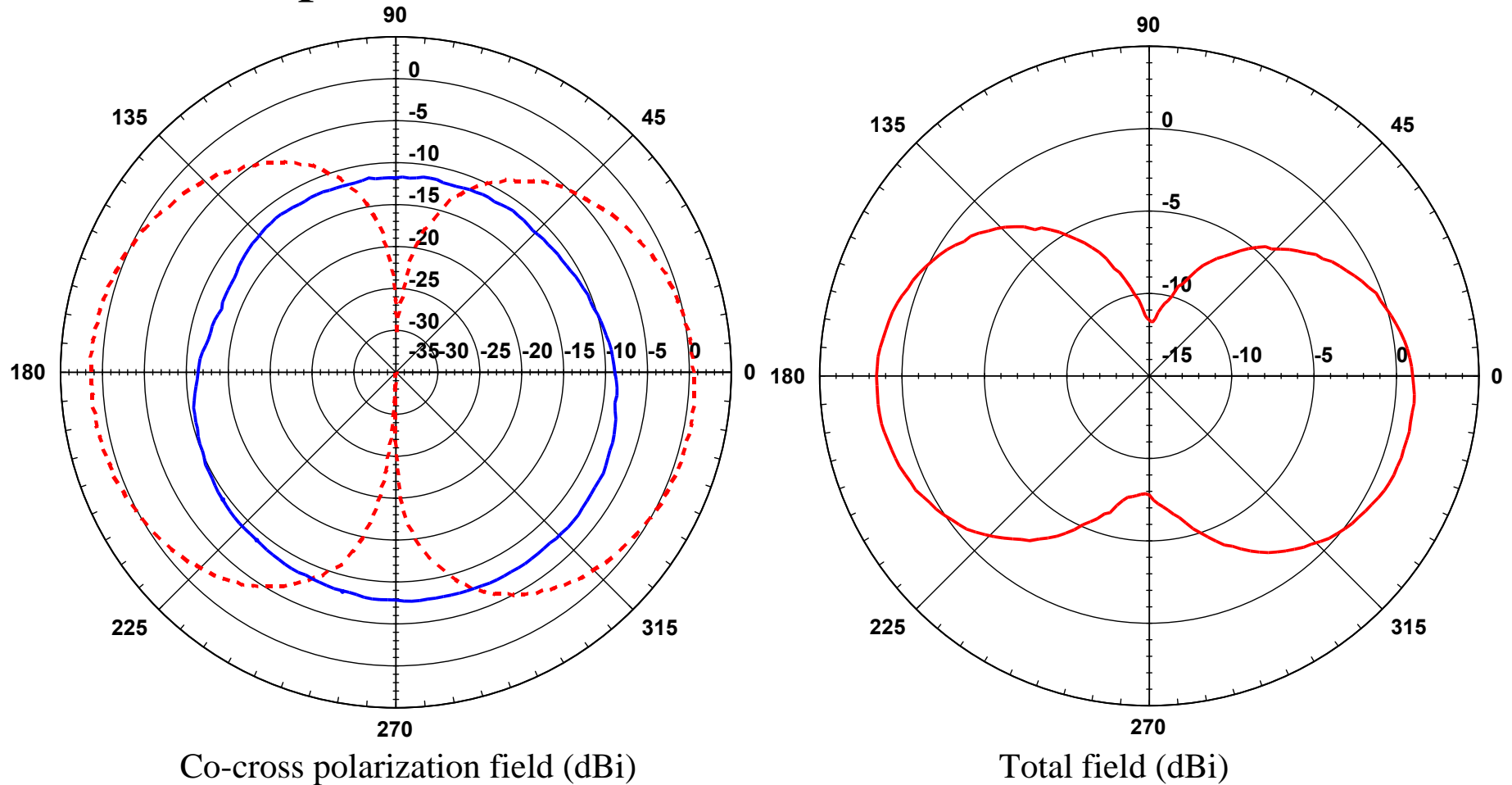
Solid line: vertical polarization
Dash line: horizontal polarization

Radiation pattern: Antenna 1. XY Plane at $f = 2.402\text{GHz}$



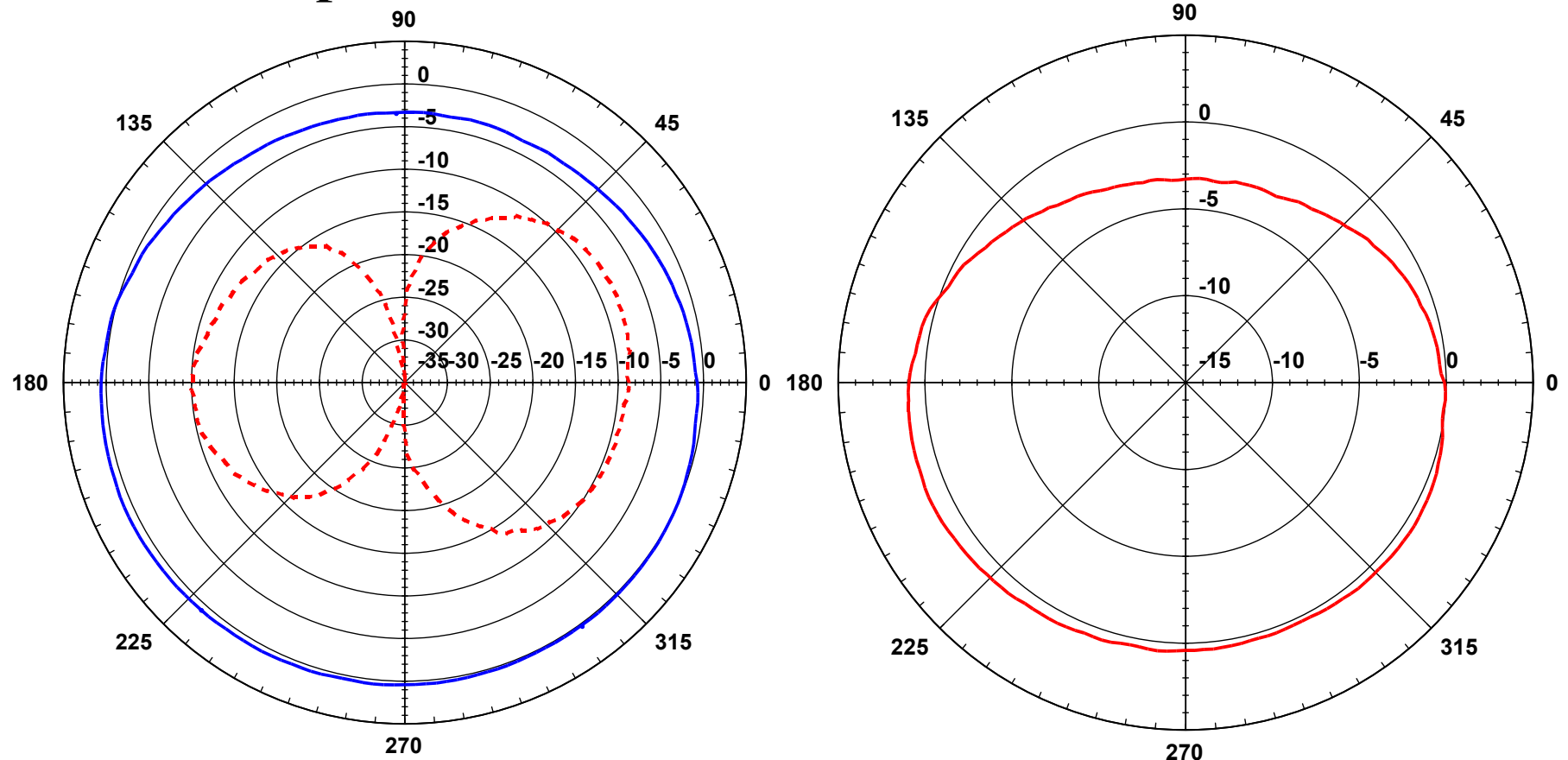
Solid line: vertical polarization
Dash line: horizontal polarization

Radiation pattern: Antenna 1. XZ Plane at $f = 2.441\text{GHz}$



Solid line: vertical polarization
Dash line: horizontal polarization

Radiation pattern: Antenna 1. YZ Plane at $f = 2.441\text{GHz}$

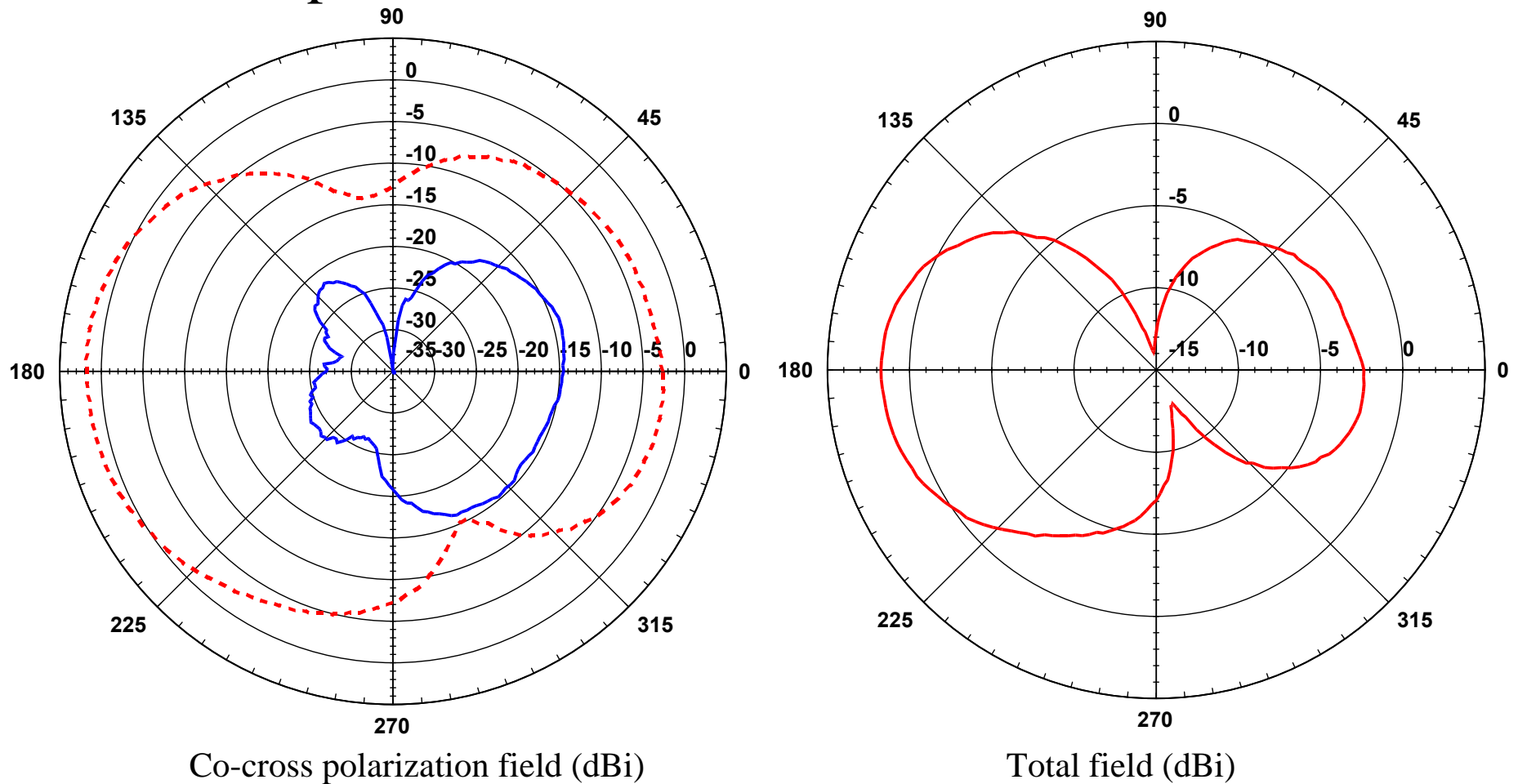


Co-cross polarization field (dBi)

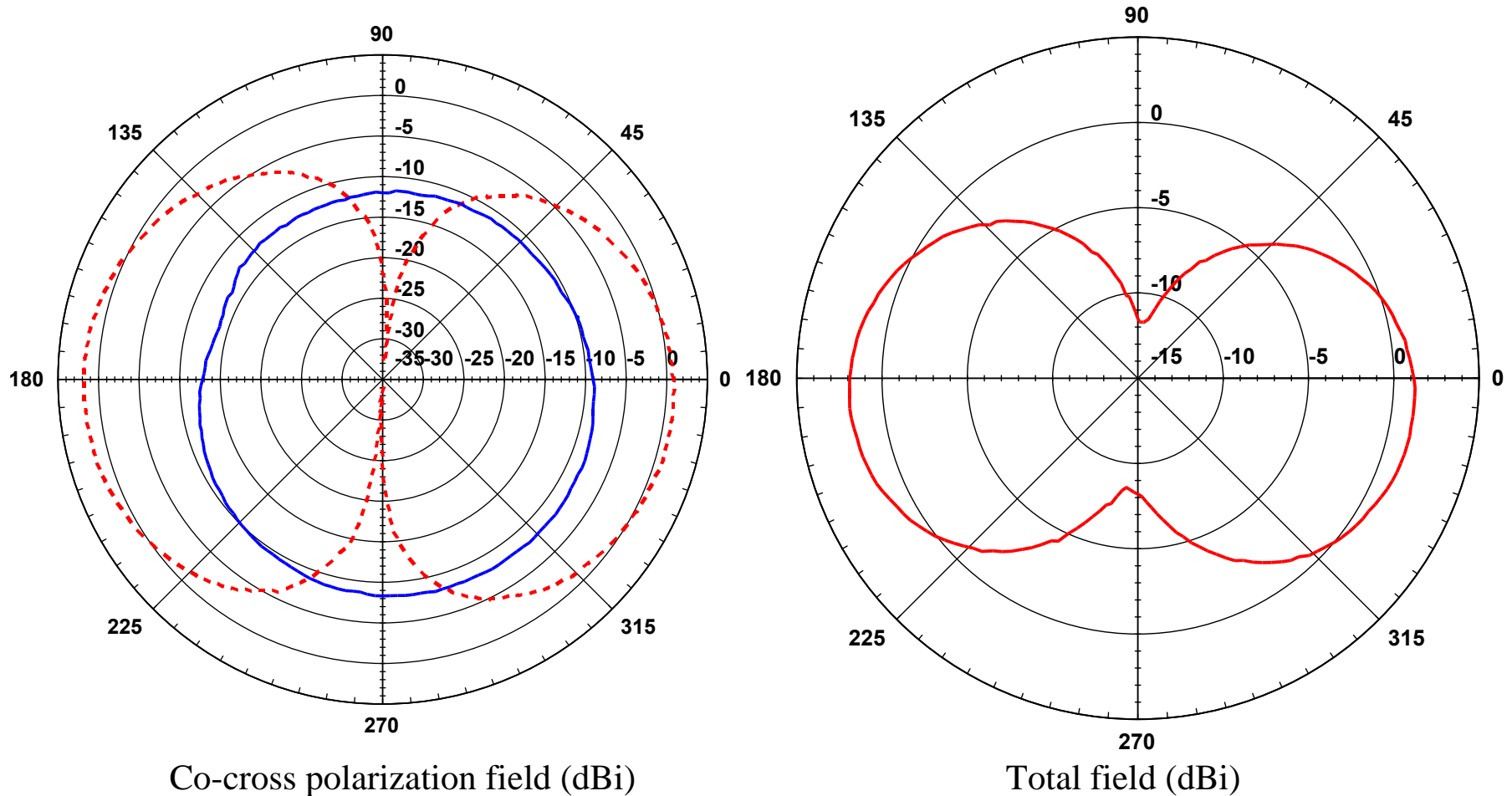
Total field (dBi)

Solid line: vertical polarization
Dash line: horizontal polarization

Radiation pattern: Antenna 1. XY Plane at $f = 2.441\text{GHz}$

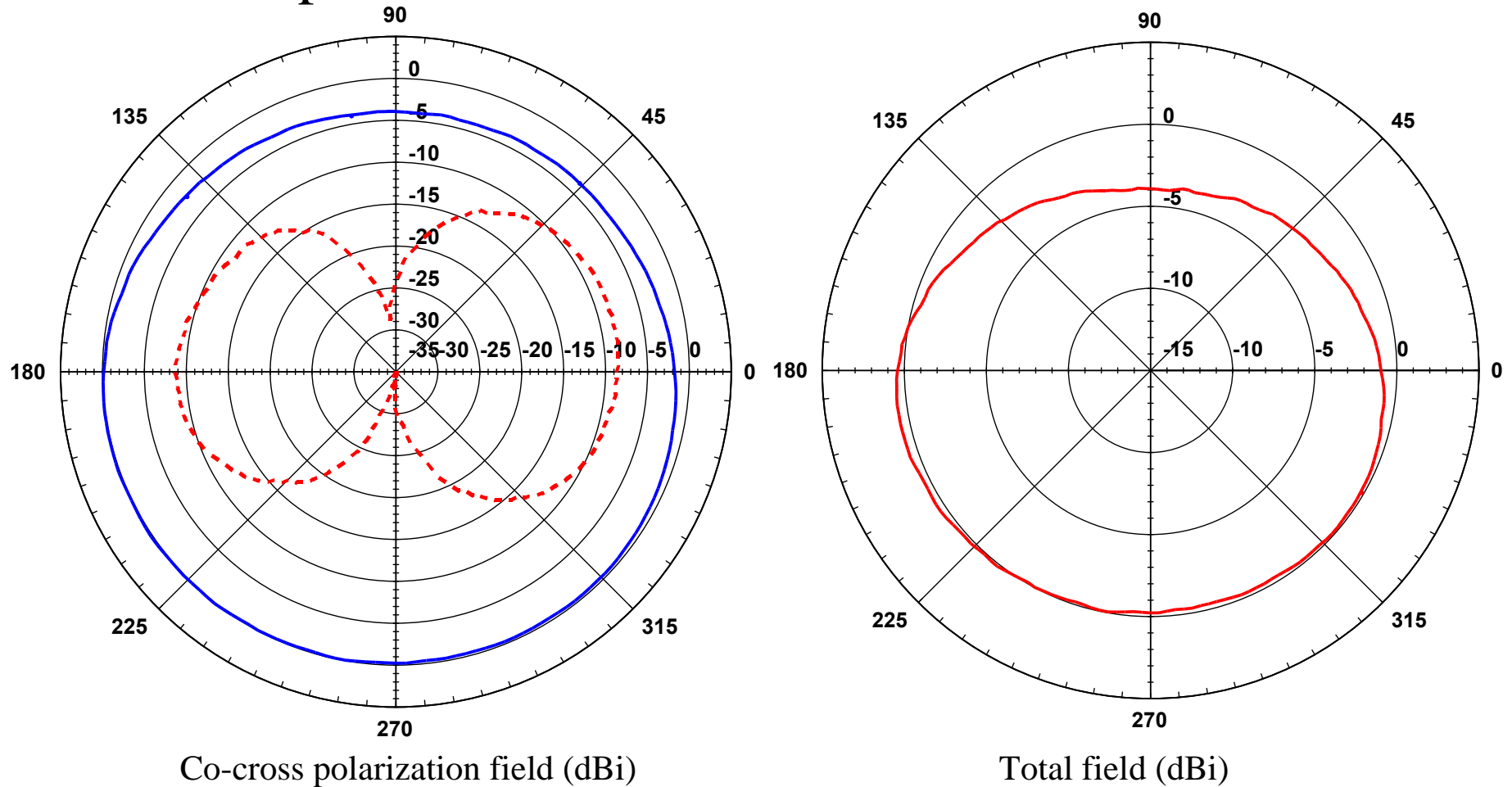


Radiation pattern: Antenna 1. XZ Plane at $f = 2.480\text{GHz}$



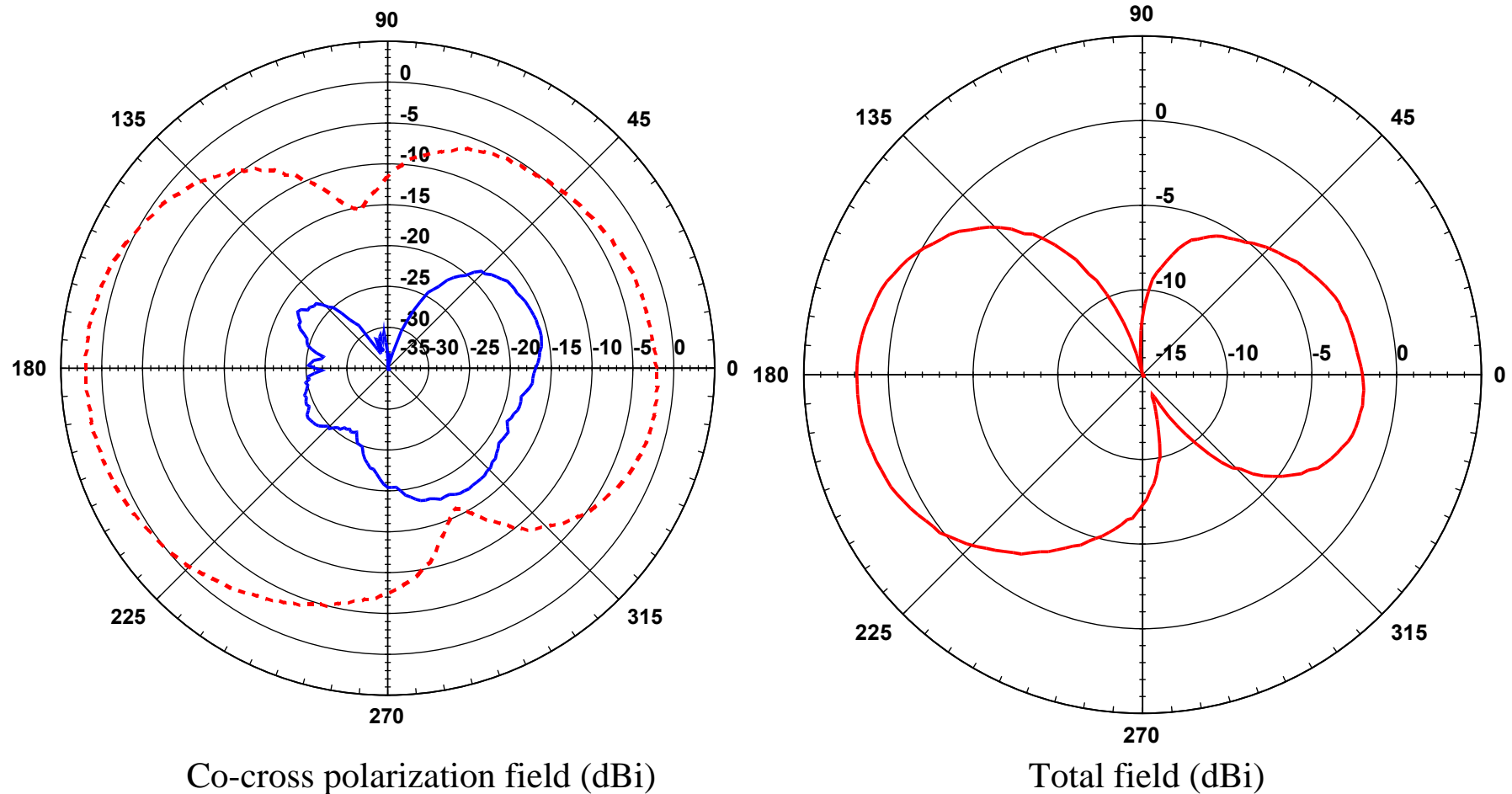
Solid line: vertical polarization
Dash line: horizontal polarization

Radiation pattern: Antenna 1. YZ Plane at $f = 2.480\text{GHz}$



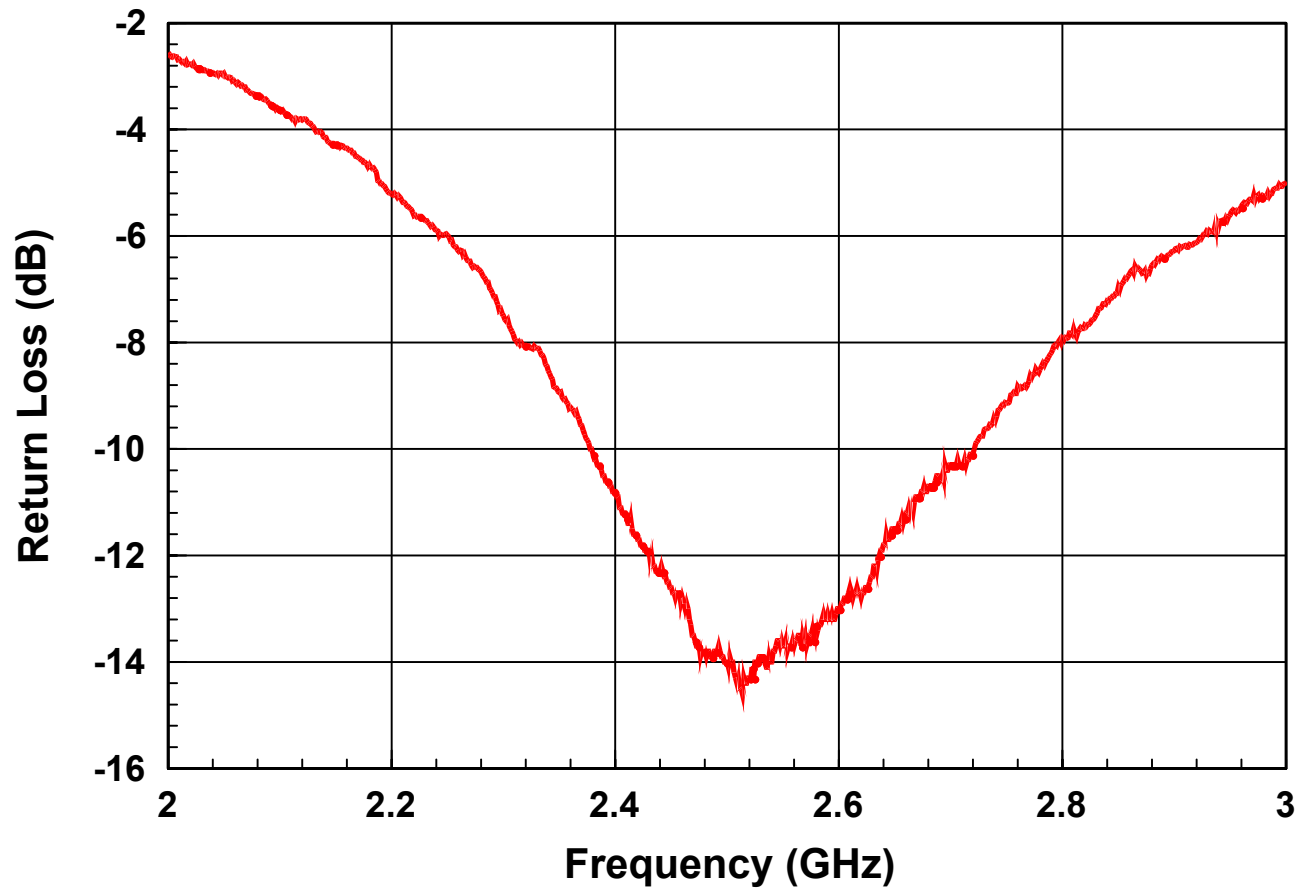
Solid line: vertical polarization
Dash line: horizontal polarization

Radiation pattern: Antenna 1. XY Plane at $f = 2.480\text{GHz}$



Solid line: vertical polarization
Dash line: horizontal polarization

Return Loss: Antenna 1



BW(-10dB) ⌚ 13.48%

Measurements summary

| | Frequency (GHz) | Plane | Return Loss (dB) | Polarization | Gain max. (dBi) | θ for Gain max. | ϕ for Gain max. |
|------------------|-----------------|-------|------------------|--------------|-----------------|------------------------|----------------------|
| Antenna 1 | | | | | | | |
| | 2.402 | XZ | -10.90 | Vertical | -7.8 | 290 | |
| | 2.402 | XZ | -10.90 | Horizontal | 0.786 | 182 | |
| | 2.402 | YZ | -10.90 | Vertical | 1.21 | 226 | |
| | 2.402 | YZ | -10.90 | Horizontal | -7.75 | 10 | |
| | 2.402 | XY | -10.90 | Vertical | -15.4 | | 20 |
| | 2.402 | XY | -10.90 | Horizontal | 0.93 | | 180 |
| | 2.441 | XZ | -12.20 | Vertical | -7.36 | 318 | |
| | 2.441 | XZ | -12.20 | Horizontal | 1.32 | 180 | |
| | 2.441 | YZ | -12.20 | Vertical | 0.981 | 204 | |
| | 2.441 | YZ | -12.20 | Horizontal | -8.23 | 24 | |
| | 2.441 | XY | -12.20 | Vertical | -14.1 | | -14 |
| | 2.441 | XY | -12.20 | Horizontal | 1.74 | | 180 |
| | 2.48 | XZ | -13.80 | Vertical | -7.95 | 312 | |
| | 2.48 | XZ | -13.80 | Horizontal | 1.81 | 186 | |
| | 2.48 | YZ | -13.80 | Vertical | 0.204 | 214 | |
| | 2.48 | YZ | -13.80 | Horizontal | -8.38 | 8 | |
| | 2.48 | XY | -13.80 | Vertical | -15.8 | | 12 |
| | 2.48 | XY | -13.80 | Horizontal | 1.87 | | 180 |