

BSSNET2A-115W 17BSS

Off-Axis Antenna Performance

CONUS Beam Maximum Allowable EIRP / Antenna Gain to Meet -117dBW/m²/100KHz

| CONUS BEAM | |
|--|----------|
| Satellite Location ^o WL | -115.00 |
| Nearest DBS Satellite Location ^o WL | -118.80 |
| Miniumum Spacing (w/Station Keeping @+–0.05) | 3.70 |
| Max PFD Flux Density, -117 dBW/m ² /100 kHz | -117.0 |
| Channel Bandwidth, MHz | 24.0 |
| Effective Bandwidth, dB-100 kHz | 23.8 |
| PFD Flux Density Allowed per Channel, dBW/m ² | -93.2 |
| R, Radial Distance to GEO, km | 42,164.0 |
| Min. Angle of Separation between Satellites, deg | 3.70 |
| Range between Satellites, km | 2722.8 |
| Spreading factor, dB/ m ² | -139.7 |
| Atmospheric loss, dB | 0 |
| Maximum EIRP Allowed at Minimum Separation, dBW | 46.5 |
| Peak Satellite EIRP, dBW ² | 60.2 |
| Boresight Antenna Gain, dB ³ | 37.1 |
| Tx Power into Antenna, dBW | 23.1 |
| Max Antenna Gain to Meet Space Path Spec, dB | 23.4 |
| Max Off-Axis EIRP from Plots ⁴ , dBW | 5.38 |
| Max Antenna Gain from Plots, dB | -17.72 |
| PFD / Ant Gain Margin, dB | 41.1 |

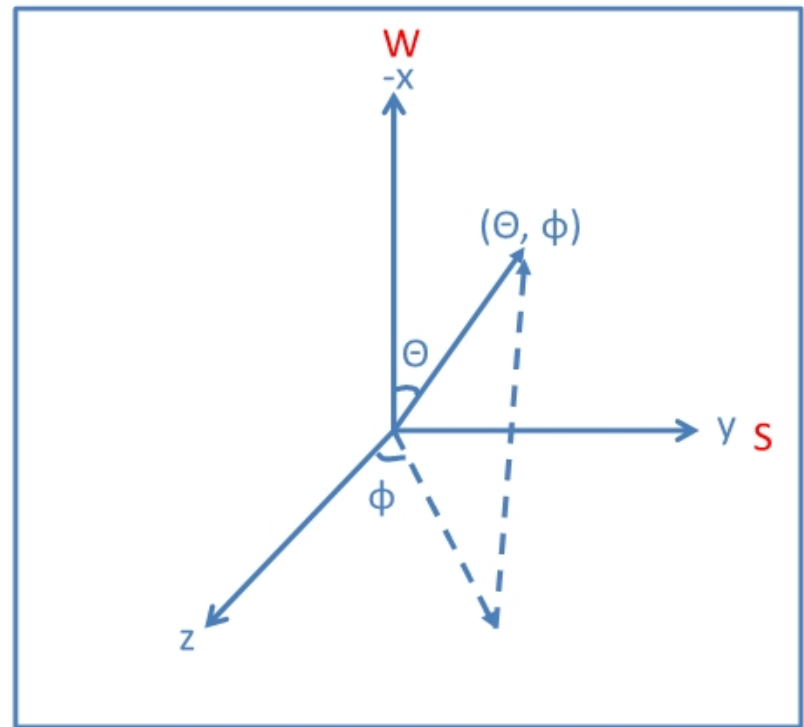
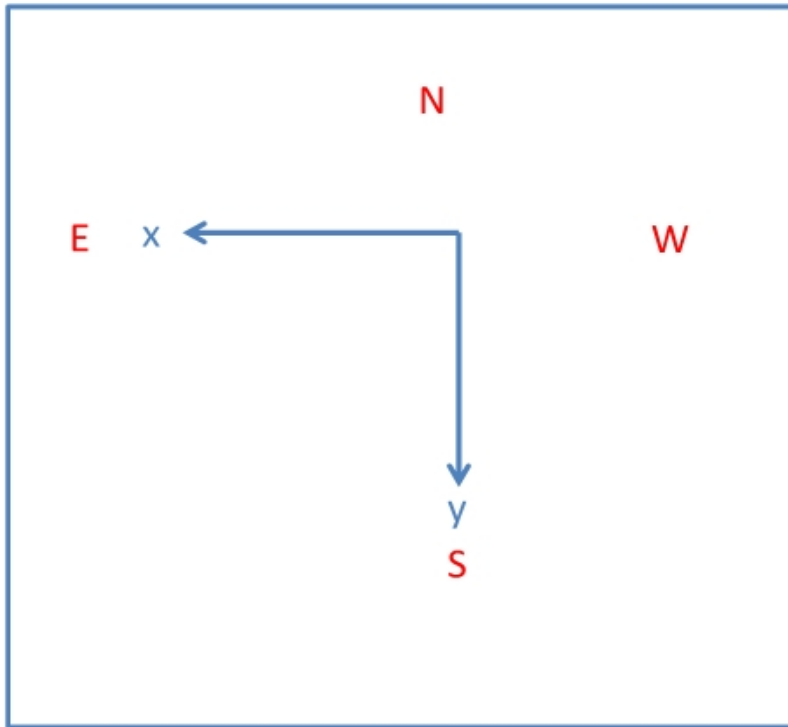
¹ As defined in FCC Section 25.264(a)

² from Schedule S7
temperature and life]

³ from Schedule S7, column (c)

⁴ Reference to Plot File: tx-17.5-rhcp–10.cut and tx-17.7-lhcp-0.cut

Coordinate System



CONUS Beam, +X Axis Plots

- Both polarizations; RHCP; LHC)
- $-30 < \Theta < 30$ ($\Theta=0$: +X-axis)
- $-60 < \phi < 60$
- Freqs = 17.305, 17.5 and 17.695 GHz

- The zero reference line on each plot is the peak off-axis gain in the title of the chart
- All off-axis gain levels are well below the 33.2 dBi level at 3.7° separation (>38 dB margin)

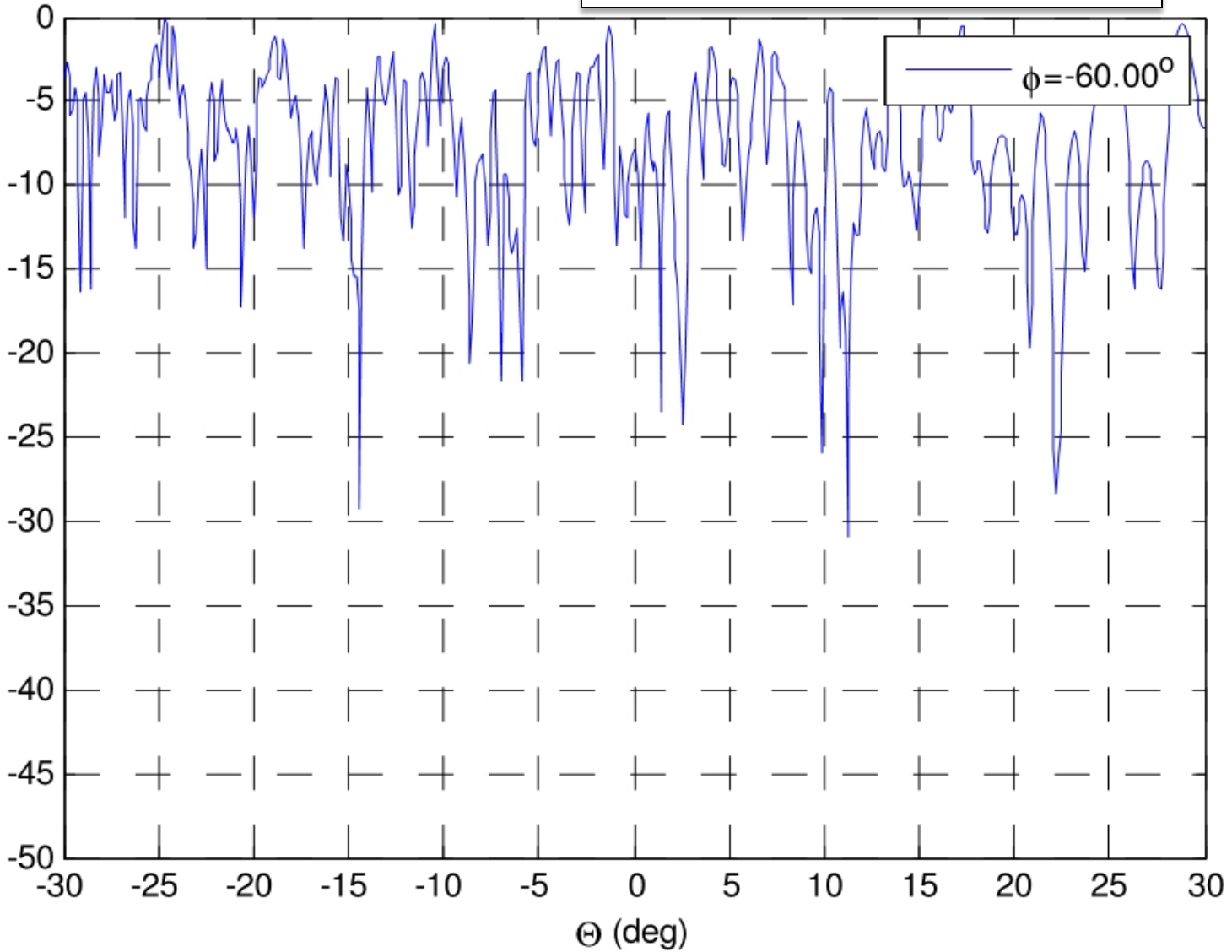
RHCP = 17.305 GHz

Normalized pattern cuts - farfield

Input file: tx-17.3-rhcp--60.cut,

Peak Off-axis Gain = -24.6 dBi

Off-axis Gain Below Peak (dBi)

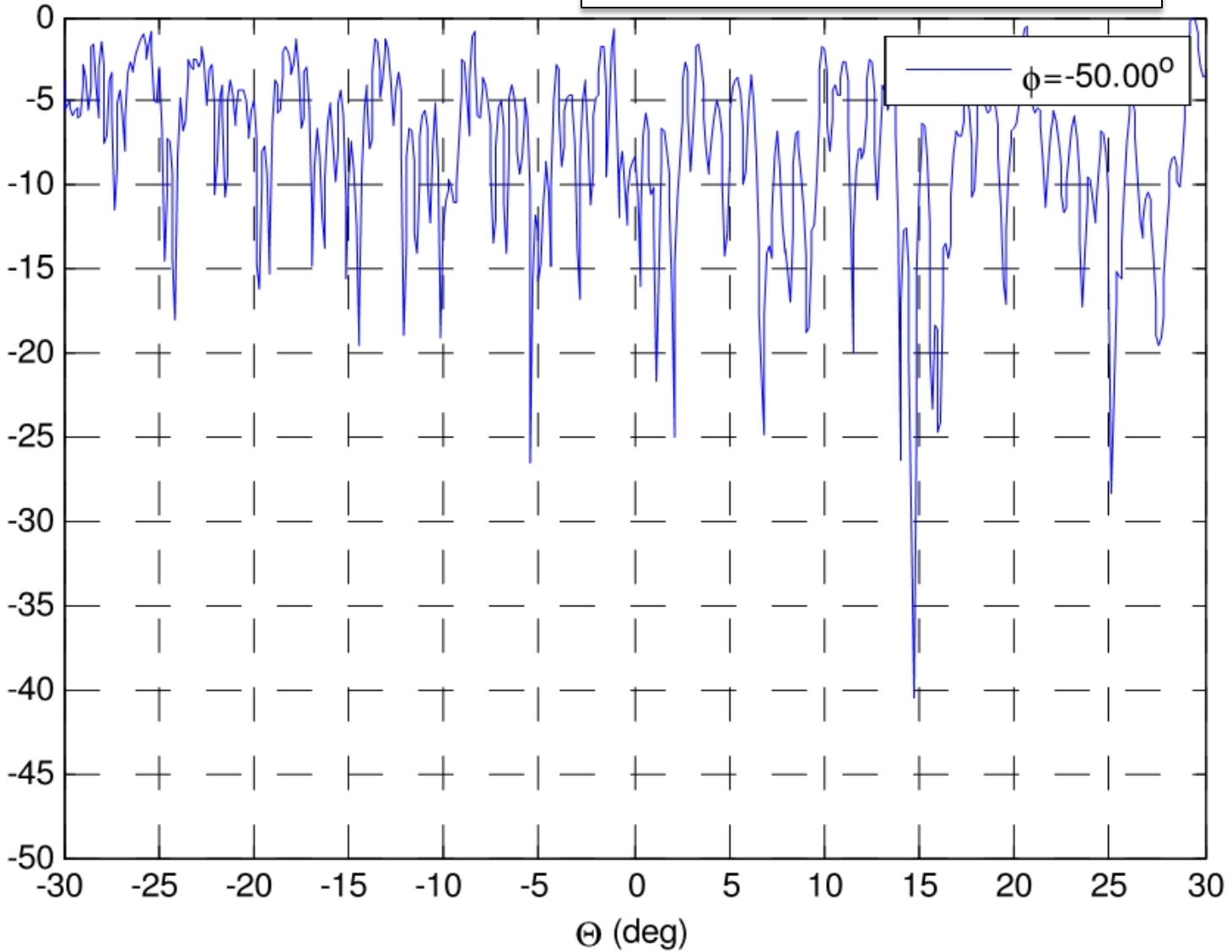


Normalized pattern cuts - farfield

Input file: tx-17.3-rhcp--50.cut,

Peak Off-axis Gain = -24.1 dBi

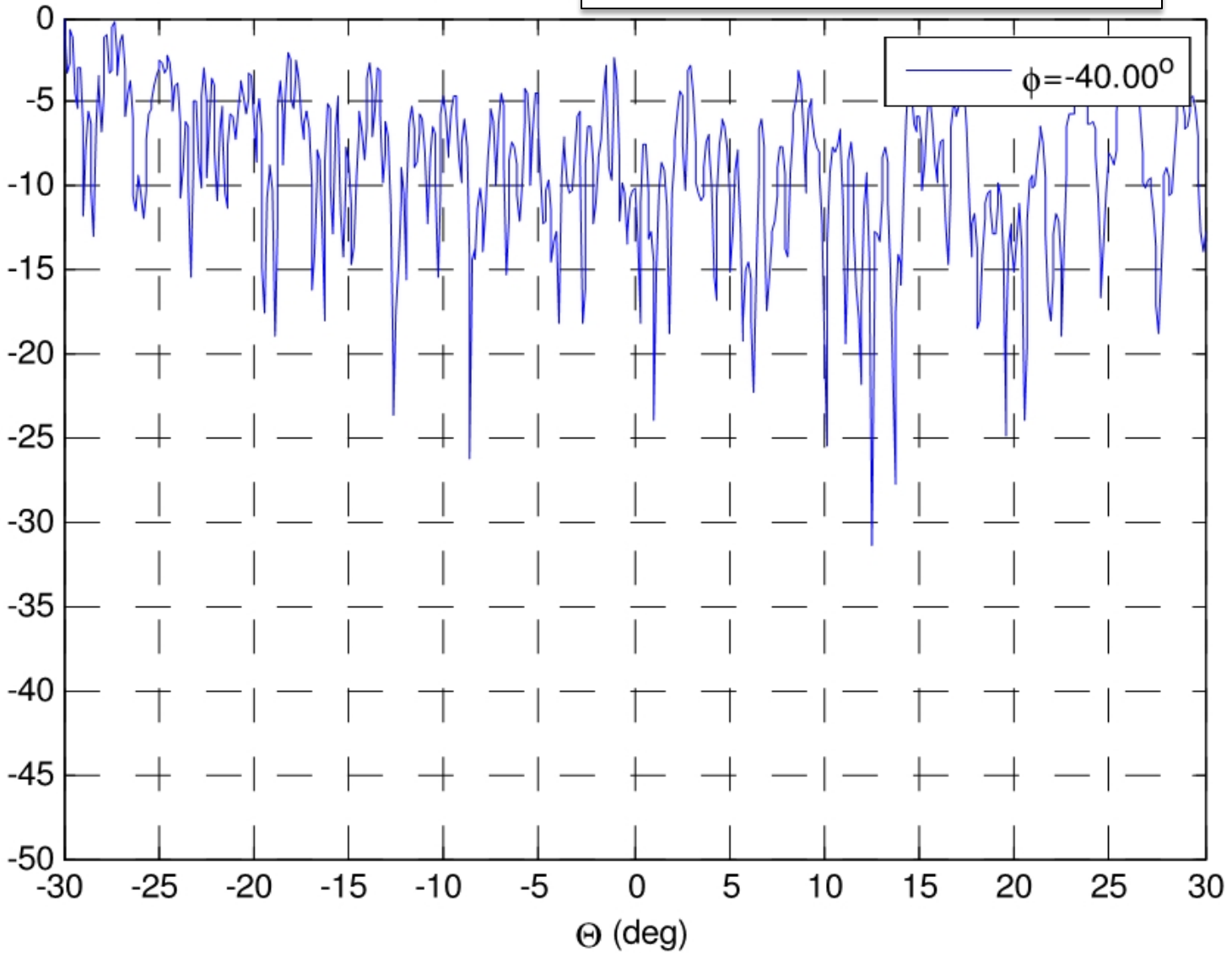
Off-axis Gain Below Peak (dBi)



Normalized pattern cuts - farfield

Input file: tx-17.3-rhcp--40.cut, Peak Off-axis Gain = -22.1 dBi

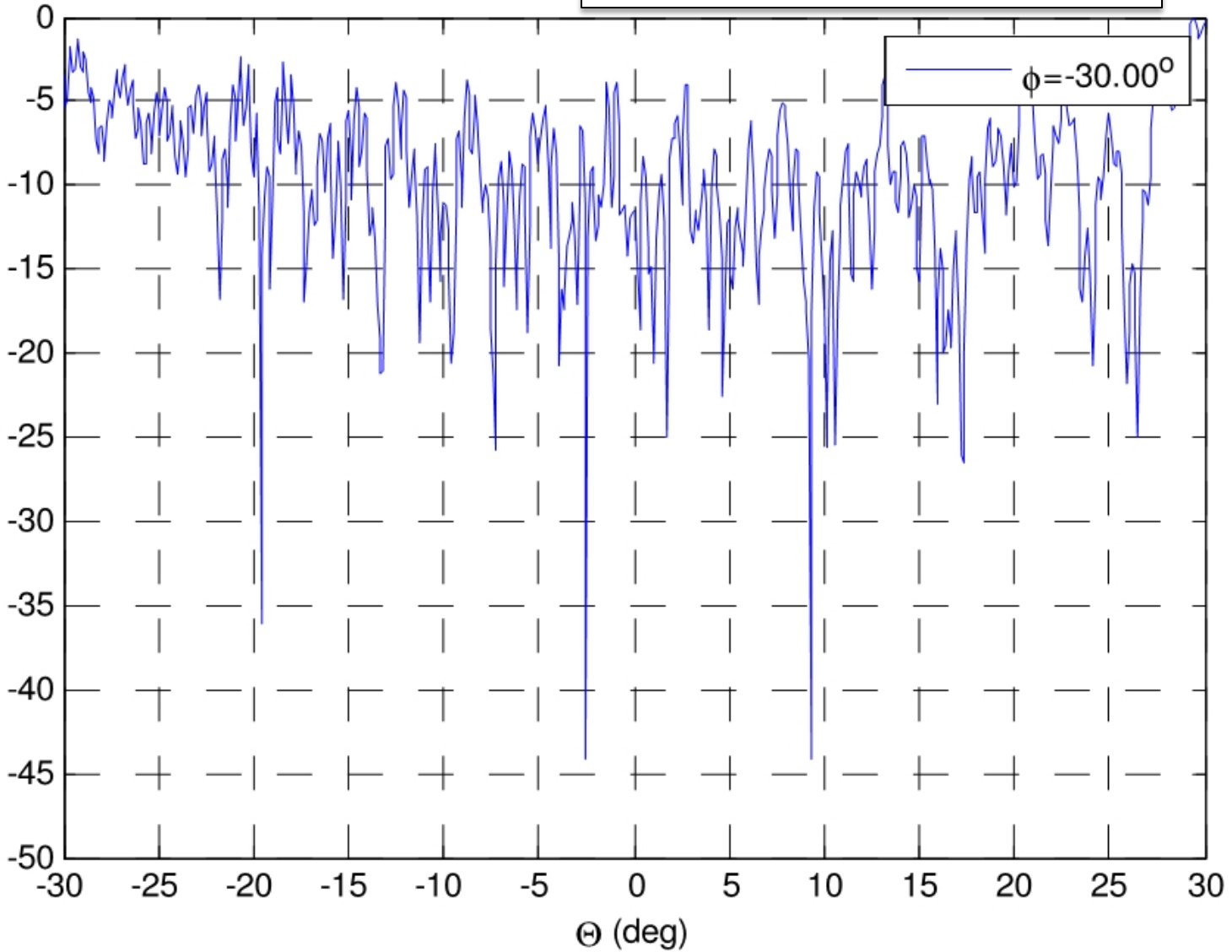
Off-axis Gain Below Peak (dBi)



Normalized pattern cuts - farfield

Input file: tx-17.3-rhcp--30.cut, Peak Off-axis Gain = -20.8 dBi

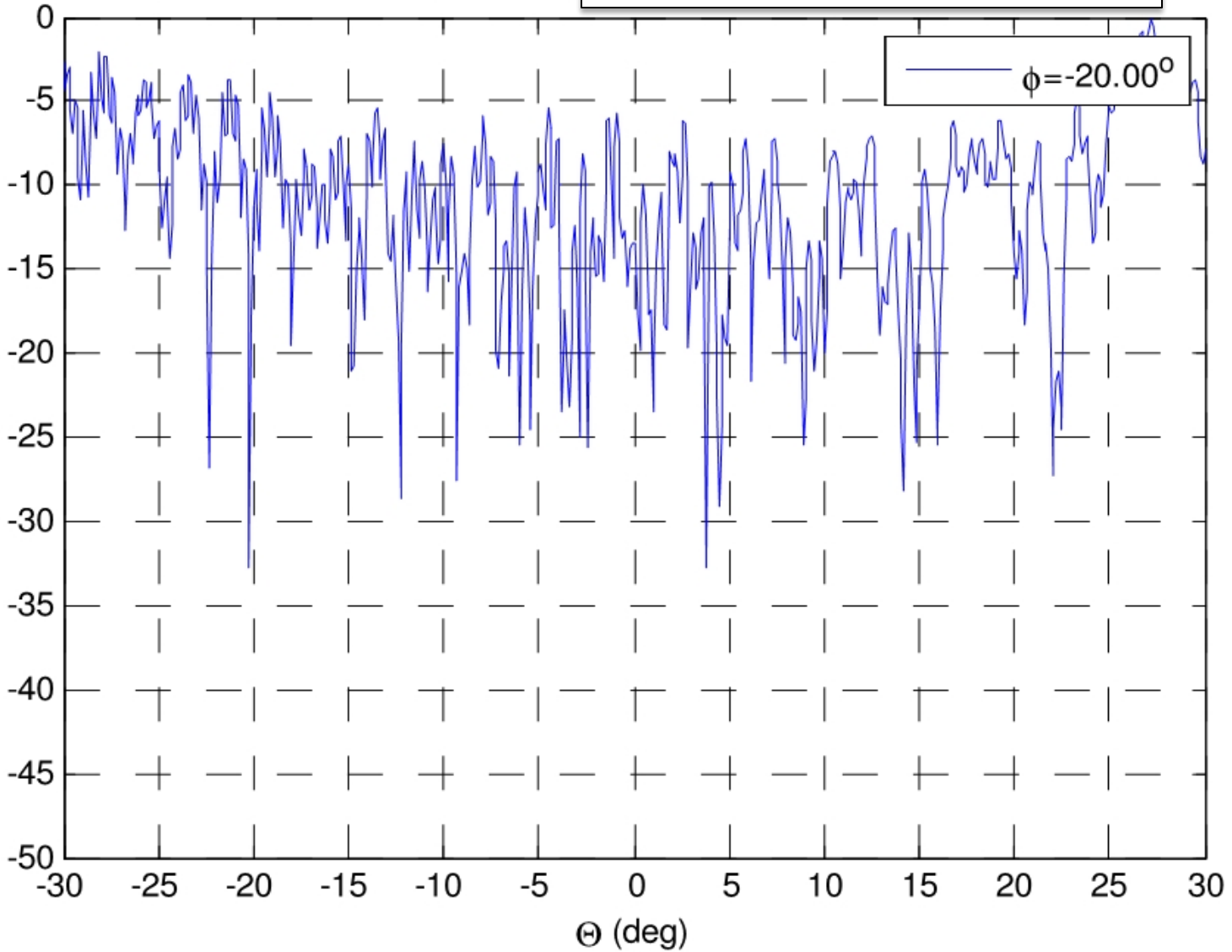
Off-axis Gain Below Peak (dBi)



Normalized pattern cuts - farfield

Input file: tx-17.3-rhcp--20.cut, Peak Off-axis Gain = -18.7 dBi

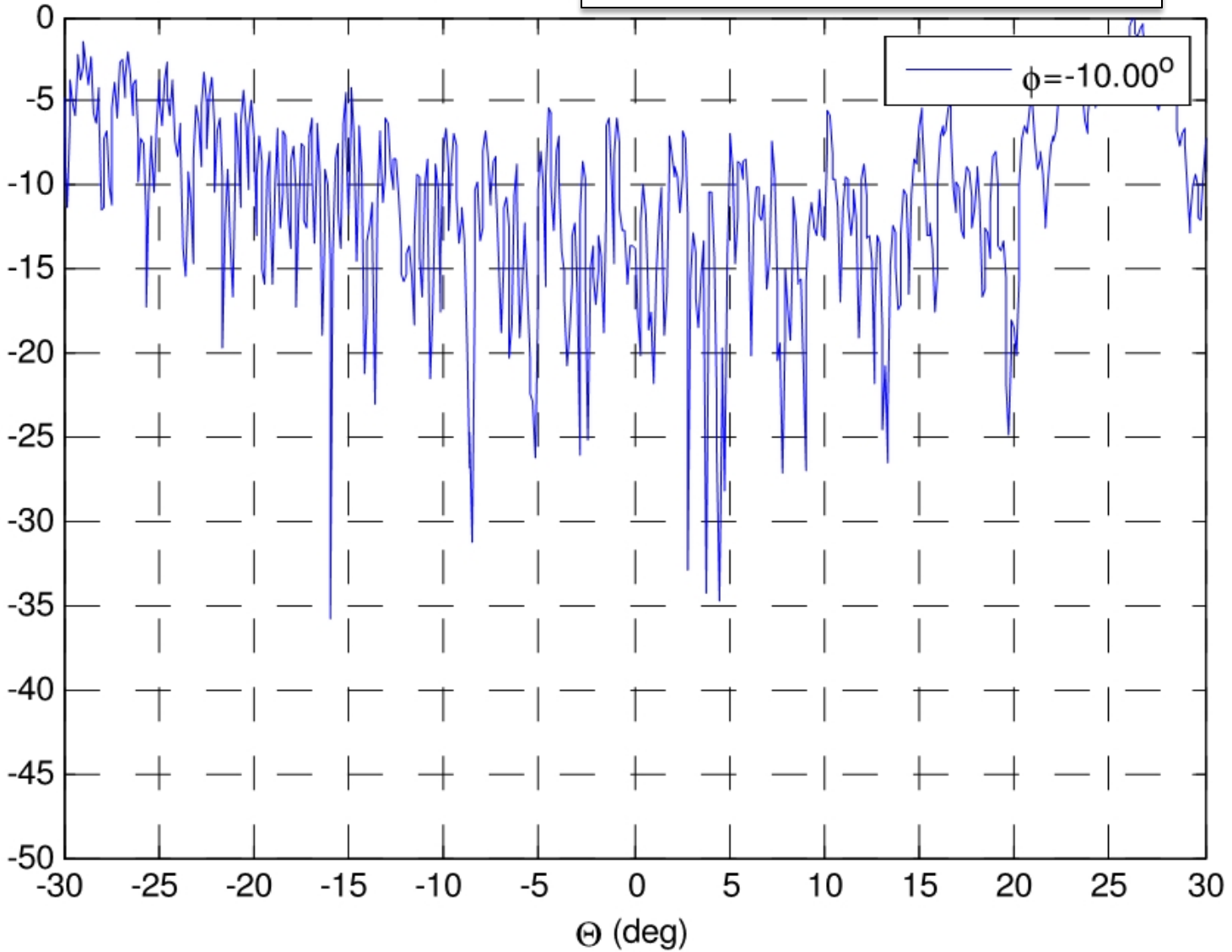
Off-axis Gain Below Peak (dBi)



Normalized pattern cuts - farfield

Input file: tx-17.3-rhcp--10.cut, Peak Off-axis Gain = -18.6 dBi

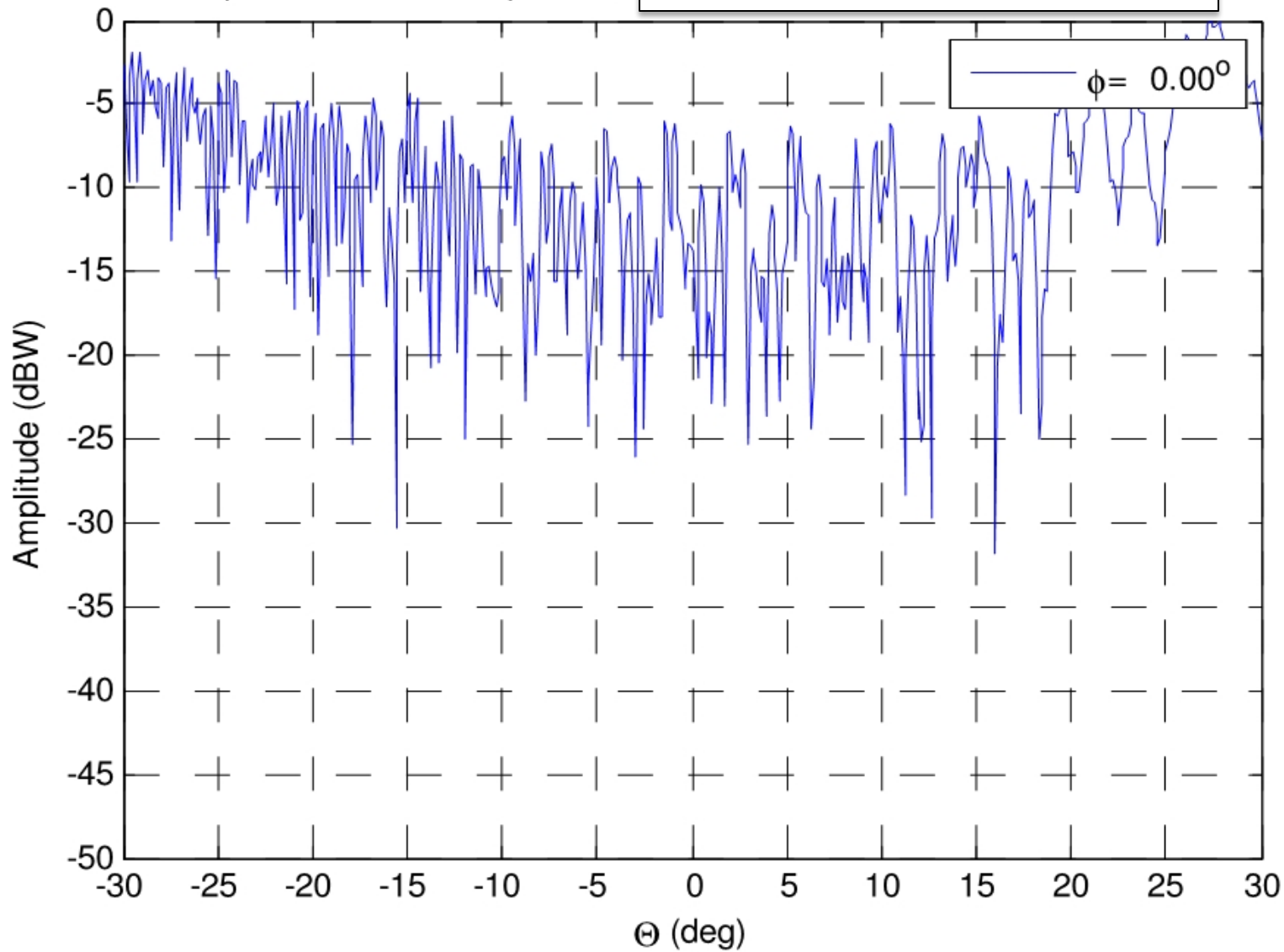
Off-axis Gain Below Peak (dBi)



Normalized pattern cuts - farfield

Input file: tx-17.3-rhcp-0.cut,

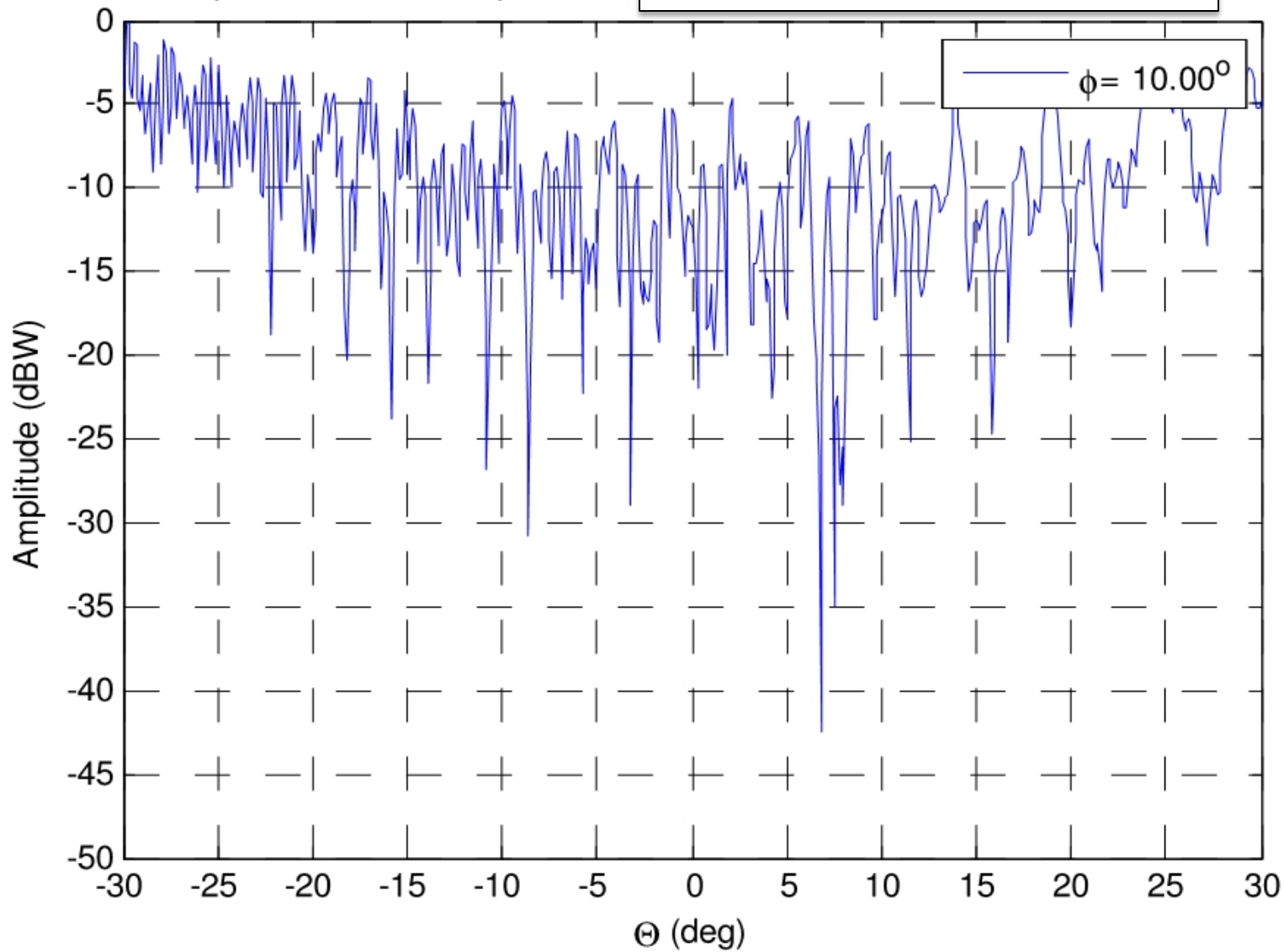
Peak Off-axis Gain = -18.7 dBi



Normalized pattern cuts - farfield

Input file: tx-17.3-rhcp-10.cut,

Peak Off-axis Gain = -19.9 dBi

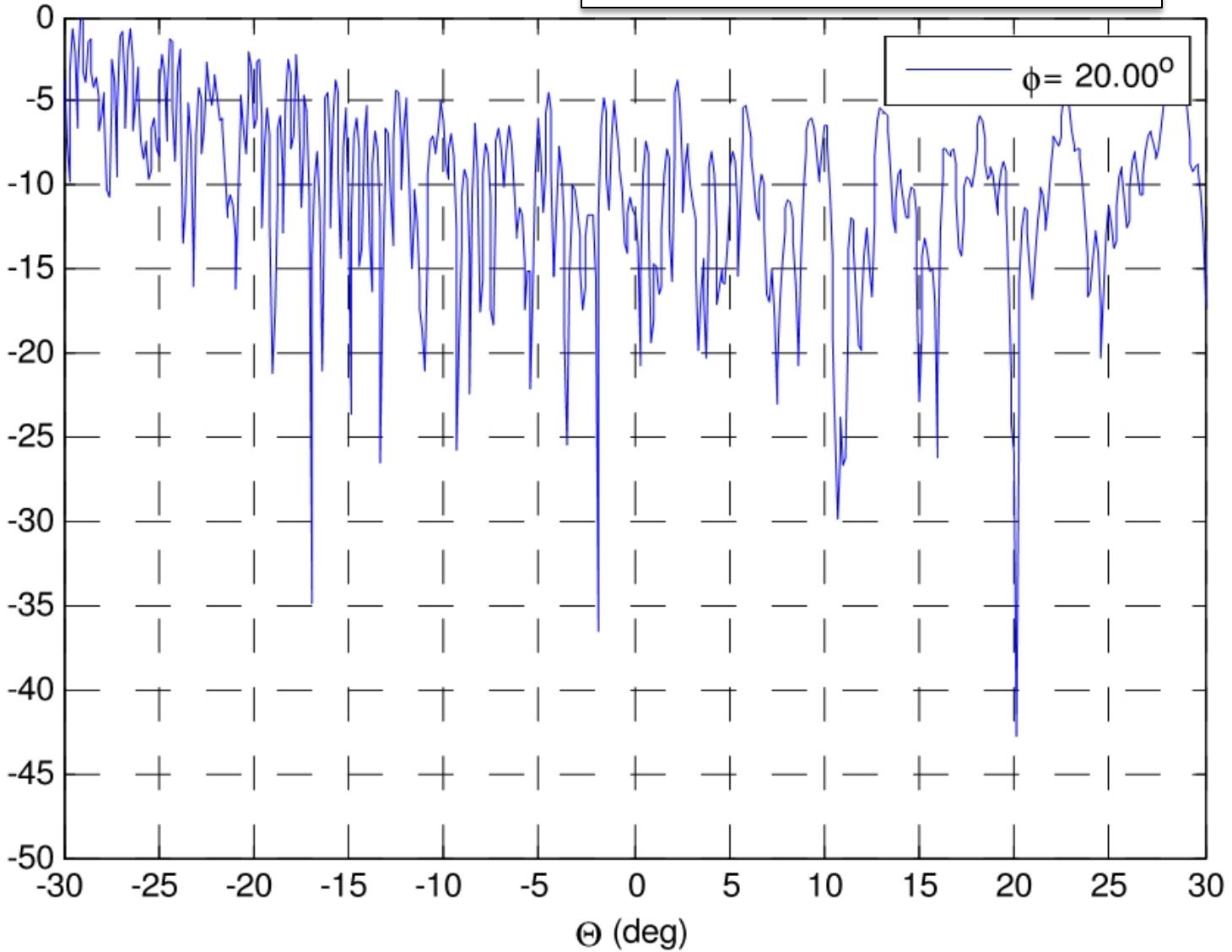


Normalized pattern cuts - farfield

Input file: tx-17.3-rhcp-20.cut,

Peak Off-axis Gain = -20.5 dBi

Off-axis Gain Below Peak (dBi)

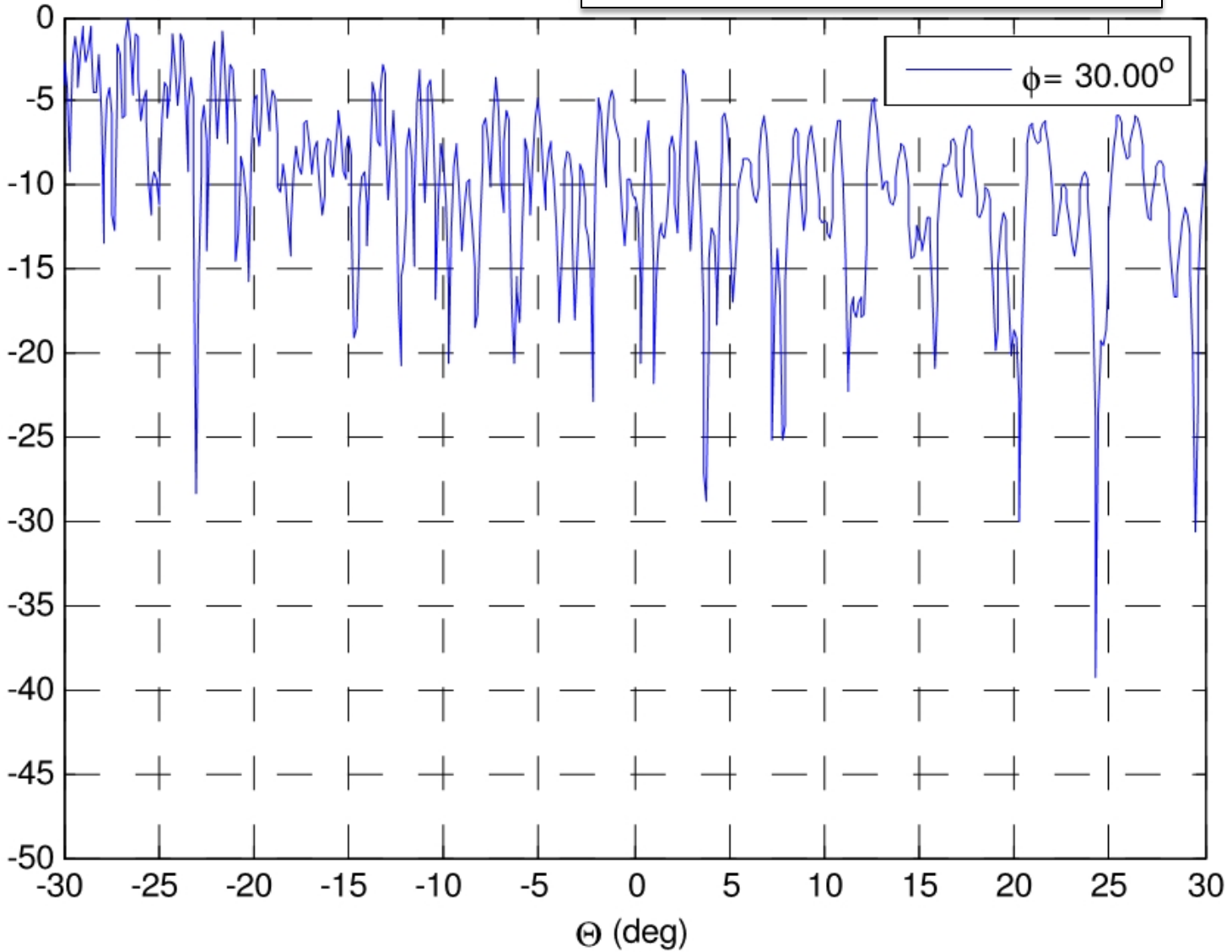


Normalized pattern cuts - farfield

Input file: tx-17.3-rhcp-30.cut,

Peak Off-axis Gain = -21.4 dBi

Off-axis Gain Below Peak (dBi)

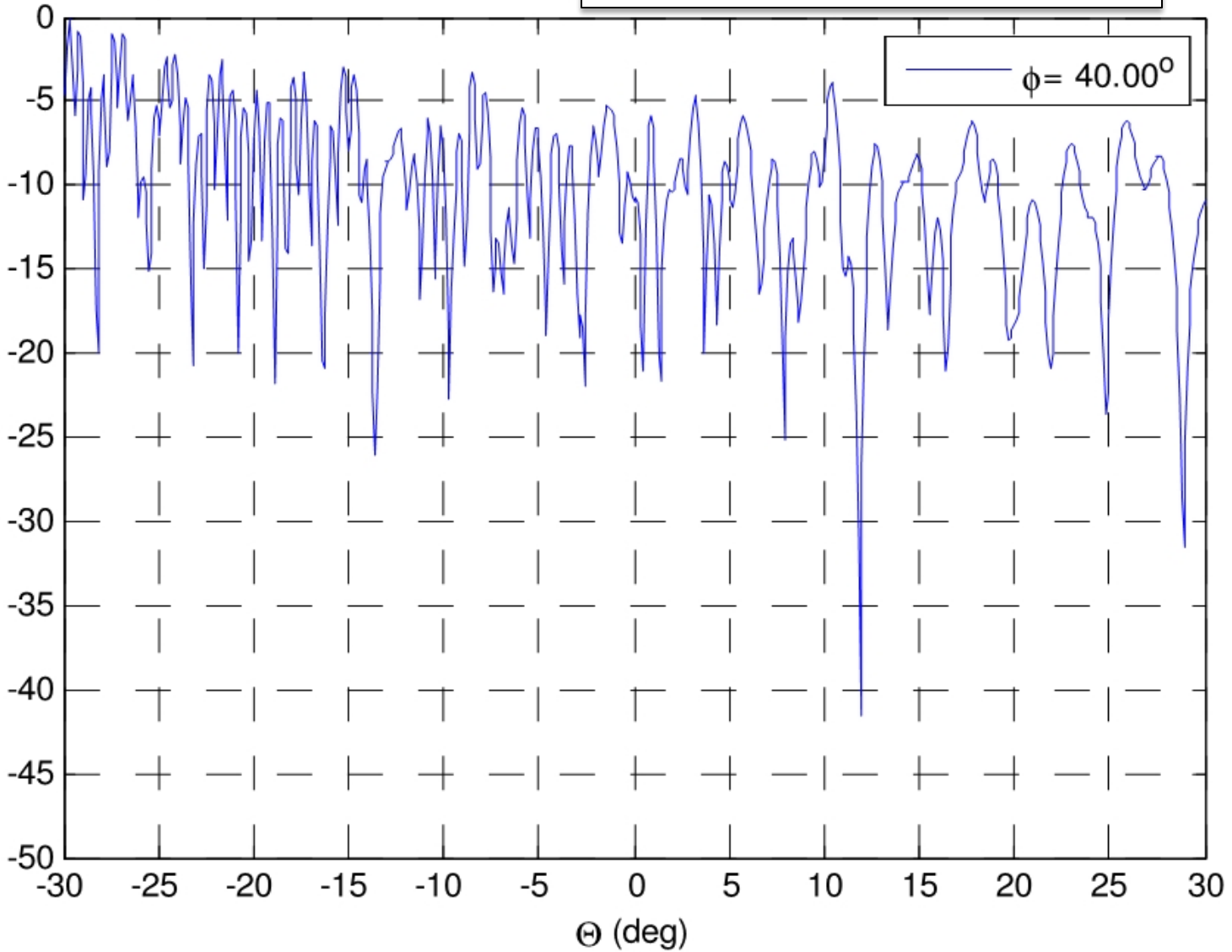


Normalized pattern cuts - farfield

Input file: tx-17.3-rhcp-40.cut,

Peak Off-axis Gain = -21.3 dBi

Off-axis Gain Below Peak (dBi)

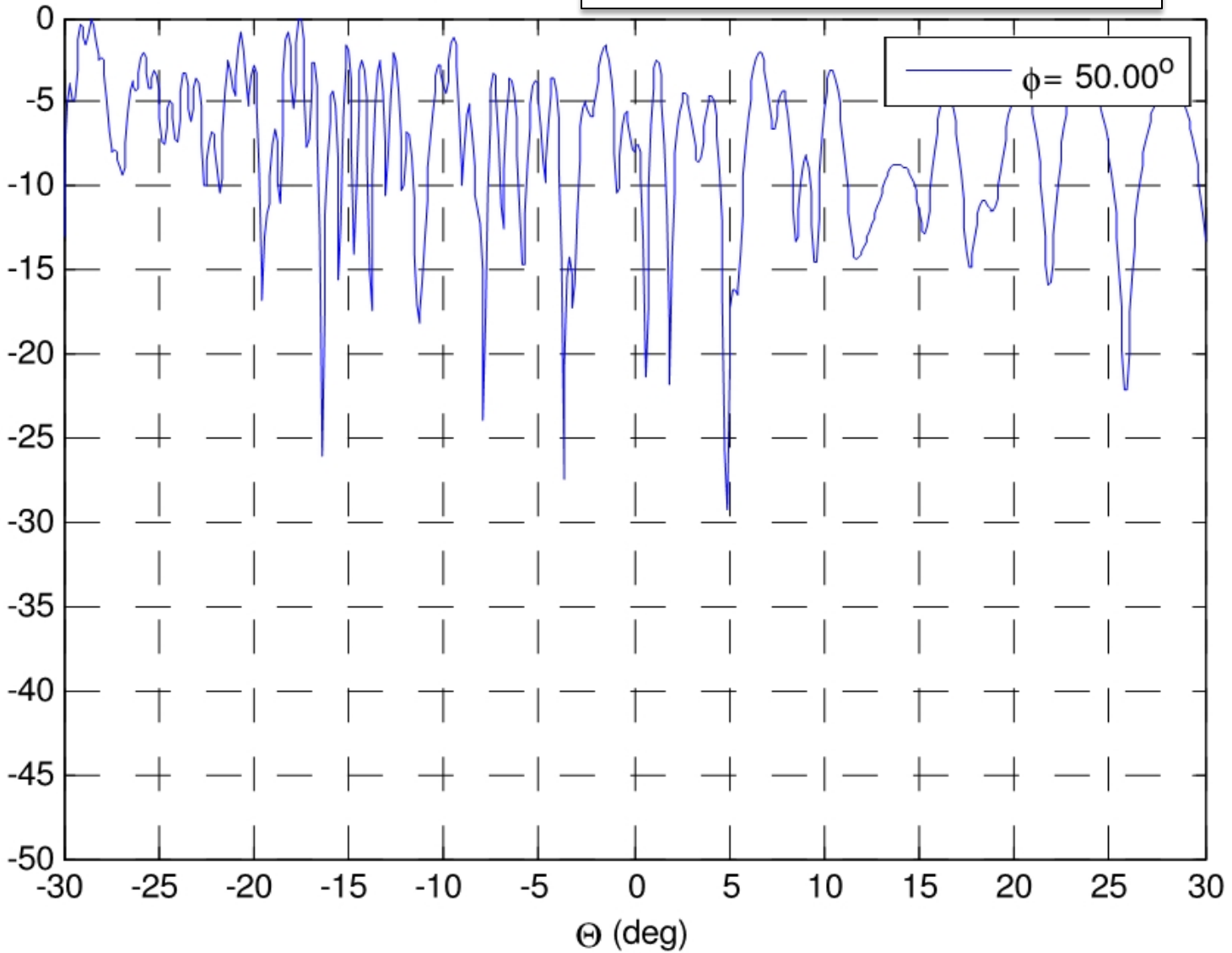


Normalized pattern cuts - farfield

Input file: tx-17.3-rhcp-50.cut,

Peak Off-axis Gain = -24.3 dBi

Off-axis Gain Below Peak (dBi)

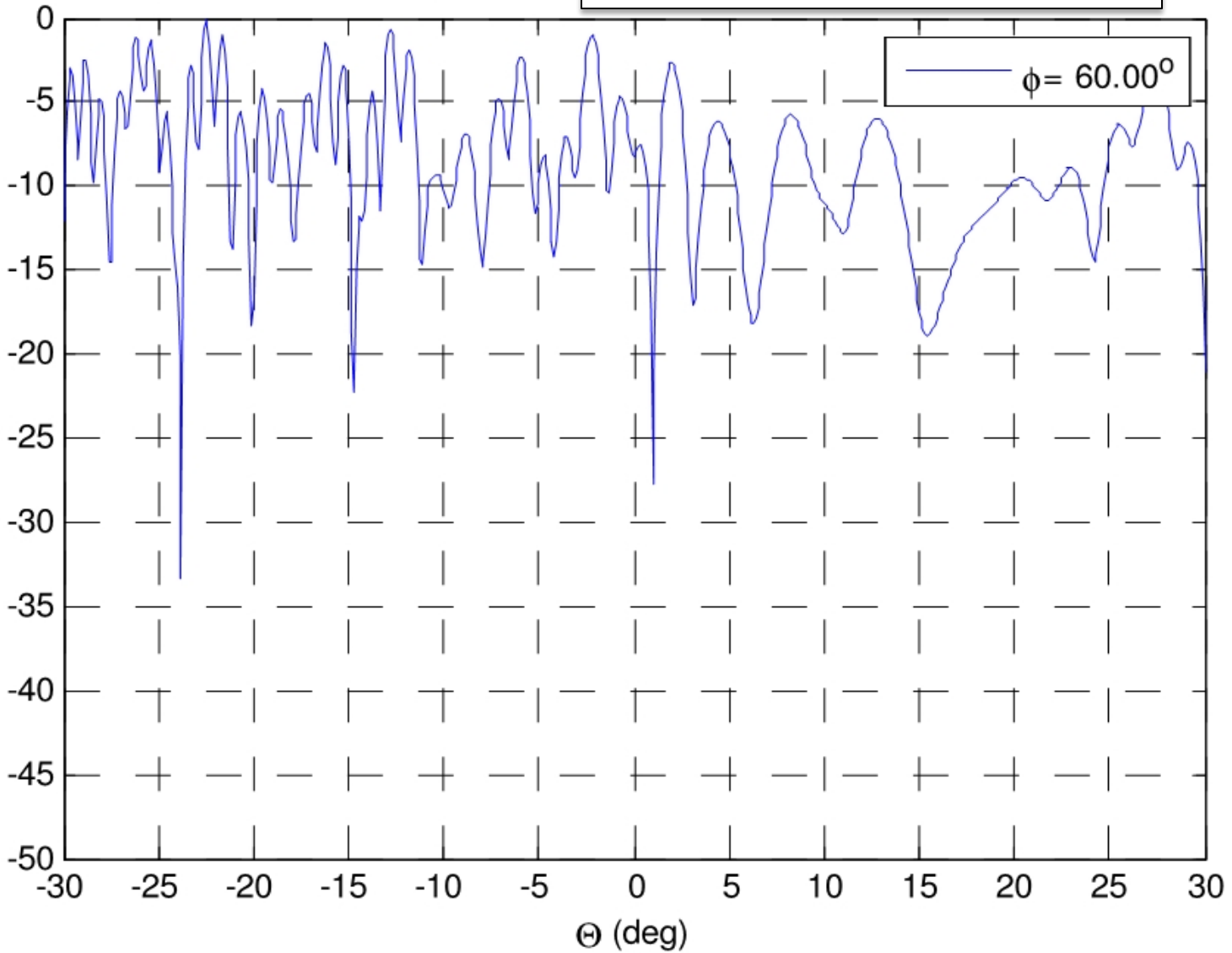


Normalized pattern cuts - farfield

Input file: tx-17.3-rhcp-60.cut,

Peak Off-axis Gain = -24.1 dBi

Off-axis Gain Below Peak (dBi)



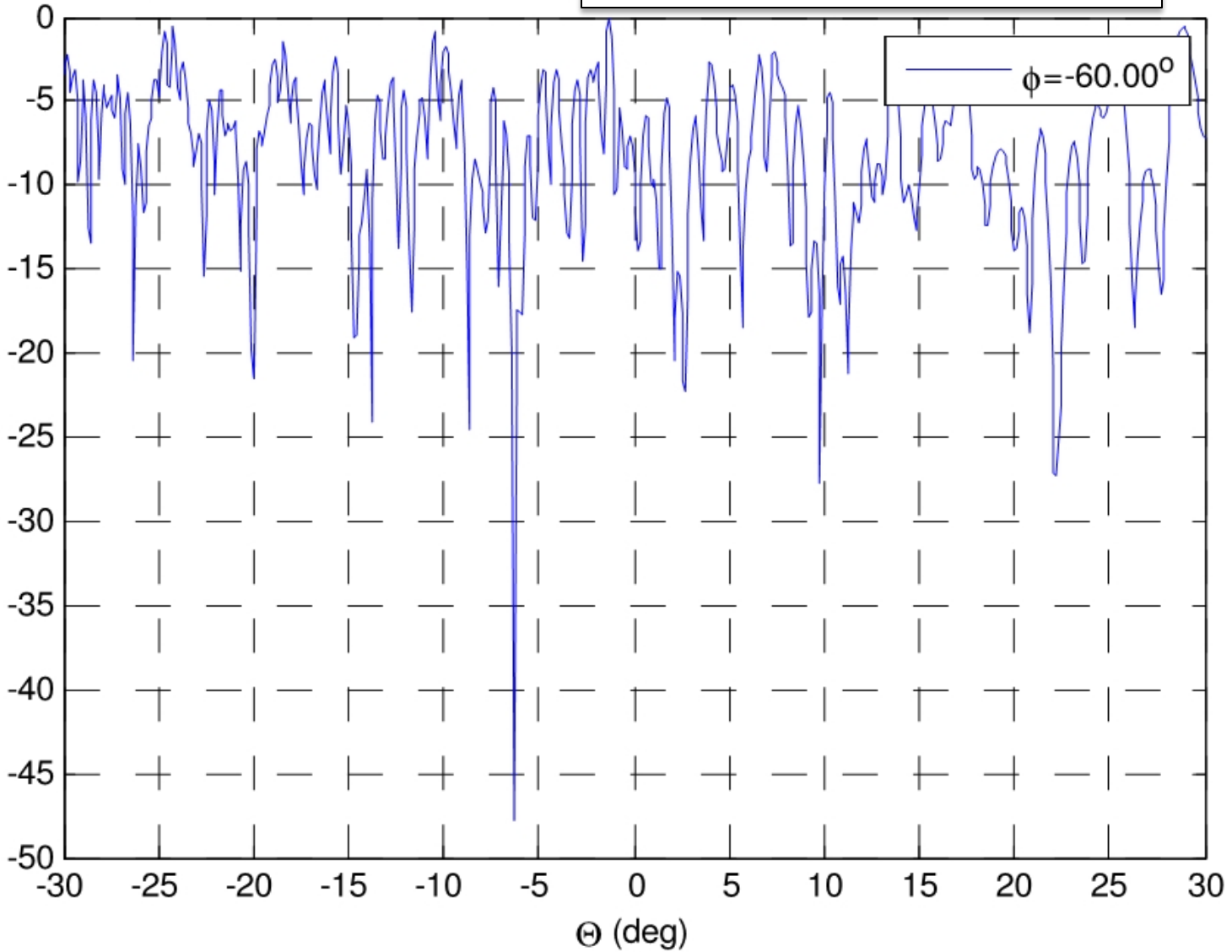
LHCP = 17.305 GHz

Normalized pattern cuts - farfield

Input file: tx-17.3-lhcp--60.cut,

Peak Off-axis Gain = -23.9 dBi

Off-axis Gain Below Peak (dBi)

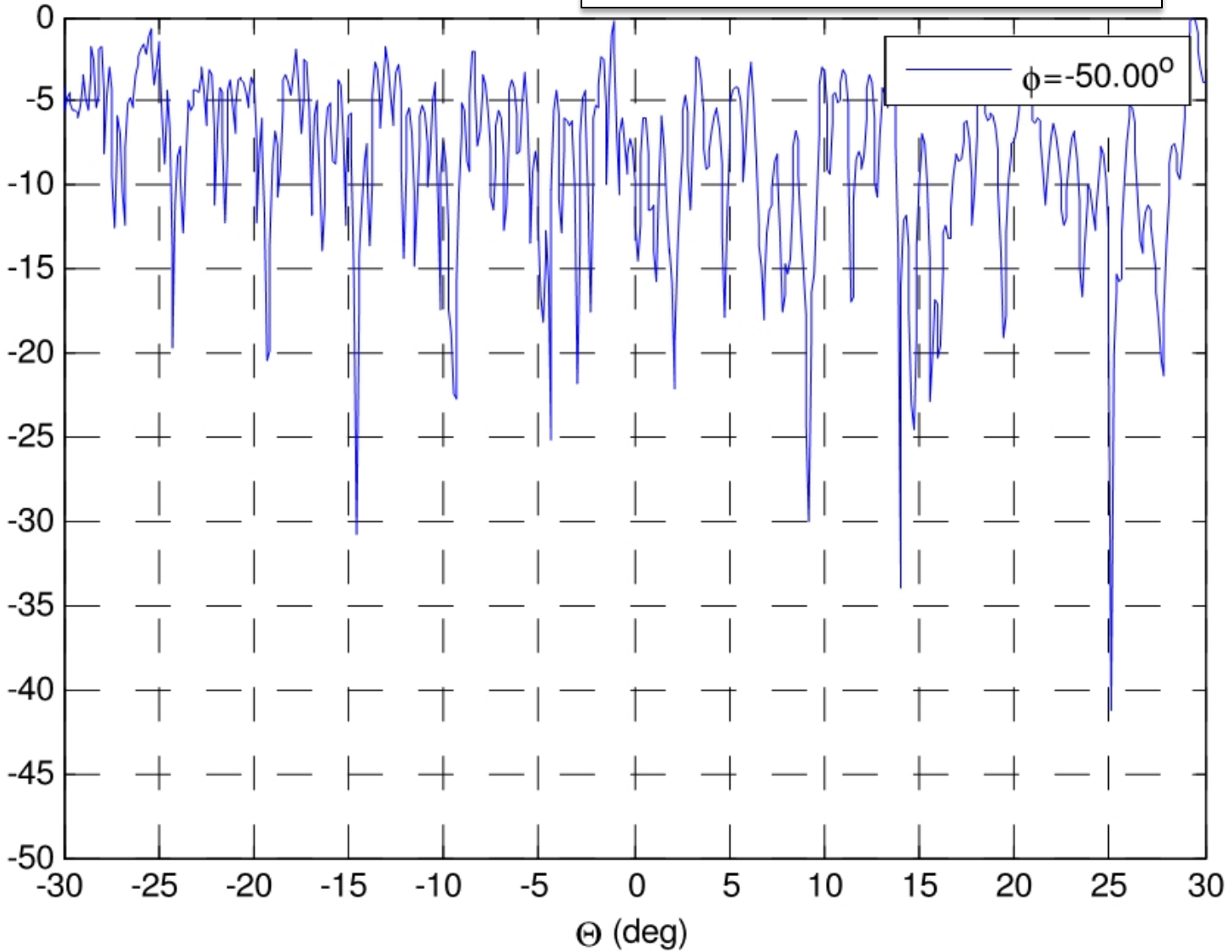


Normalized pattern cuts - farfield

Input file: tx-17.3-lhcp--50.cut,

Peak Off-axis Gain = -23.5 dBi

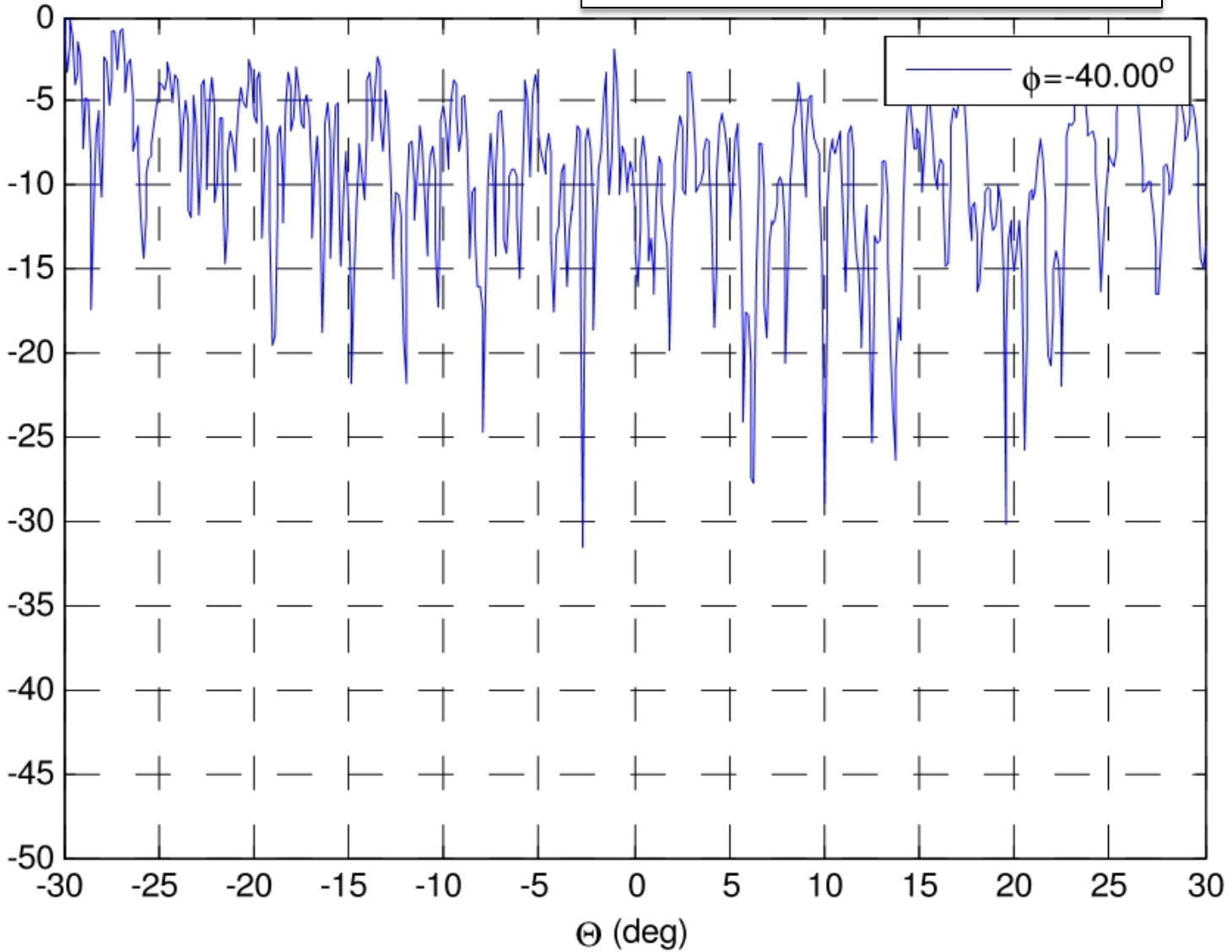
Off-axis Gain Below Peak (dBi)



Normalized pattern cuts - farfield

Input file: tx-17.3-lhcp--40.cut, Peak Off-axis Gain = -22.9 dBi

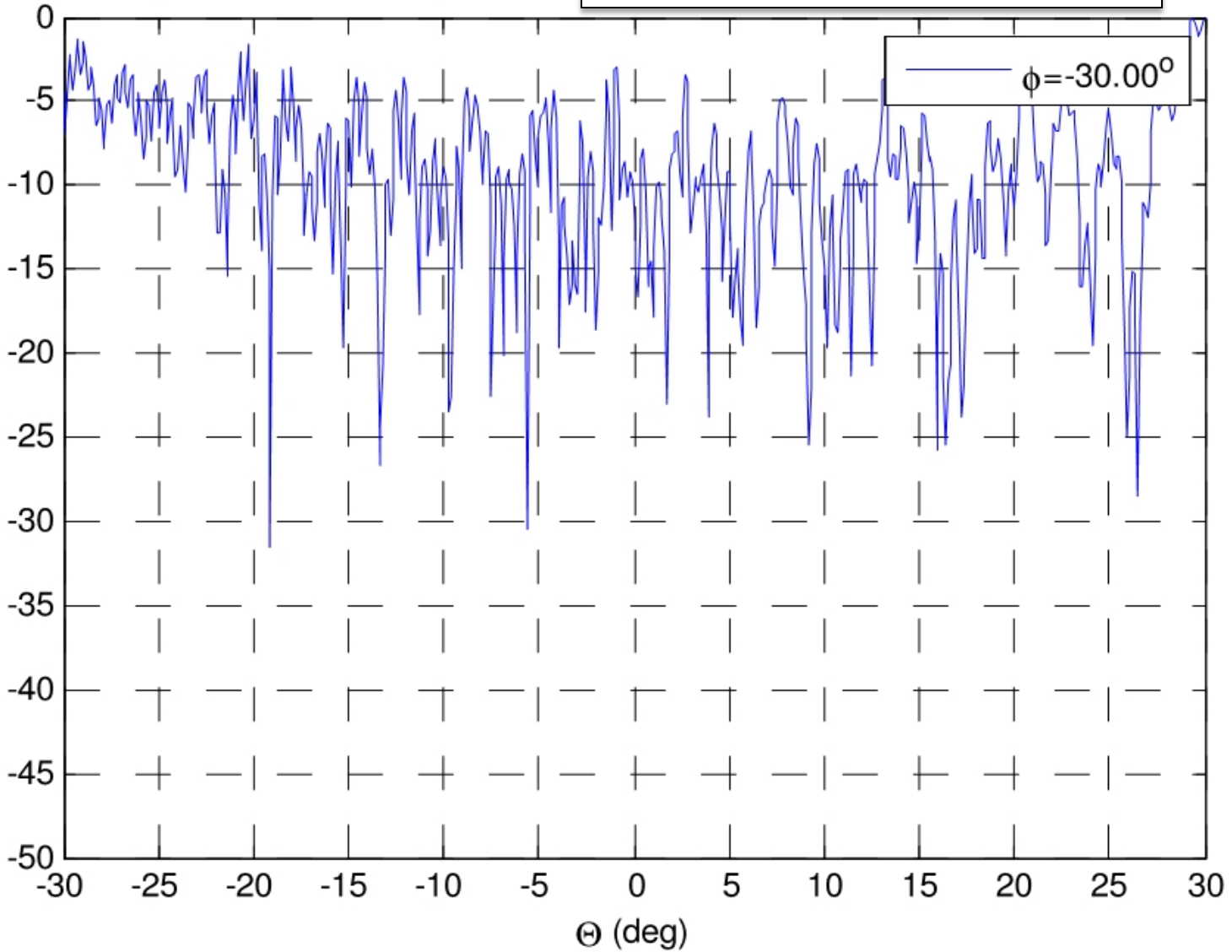
Off-axis Gain Below Peak (dBi)



Normalized pattern cuts - farfield

Input file: tx-17.3-lhcp--30.cut, Peak Off-axis Gain = -21.2 dBi

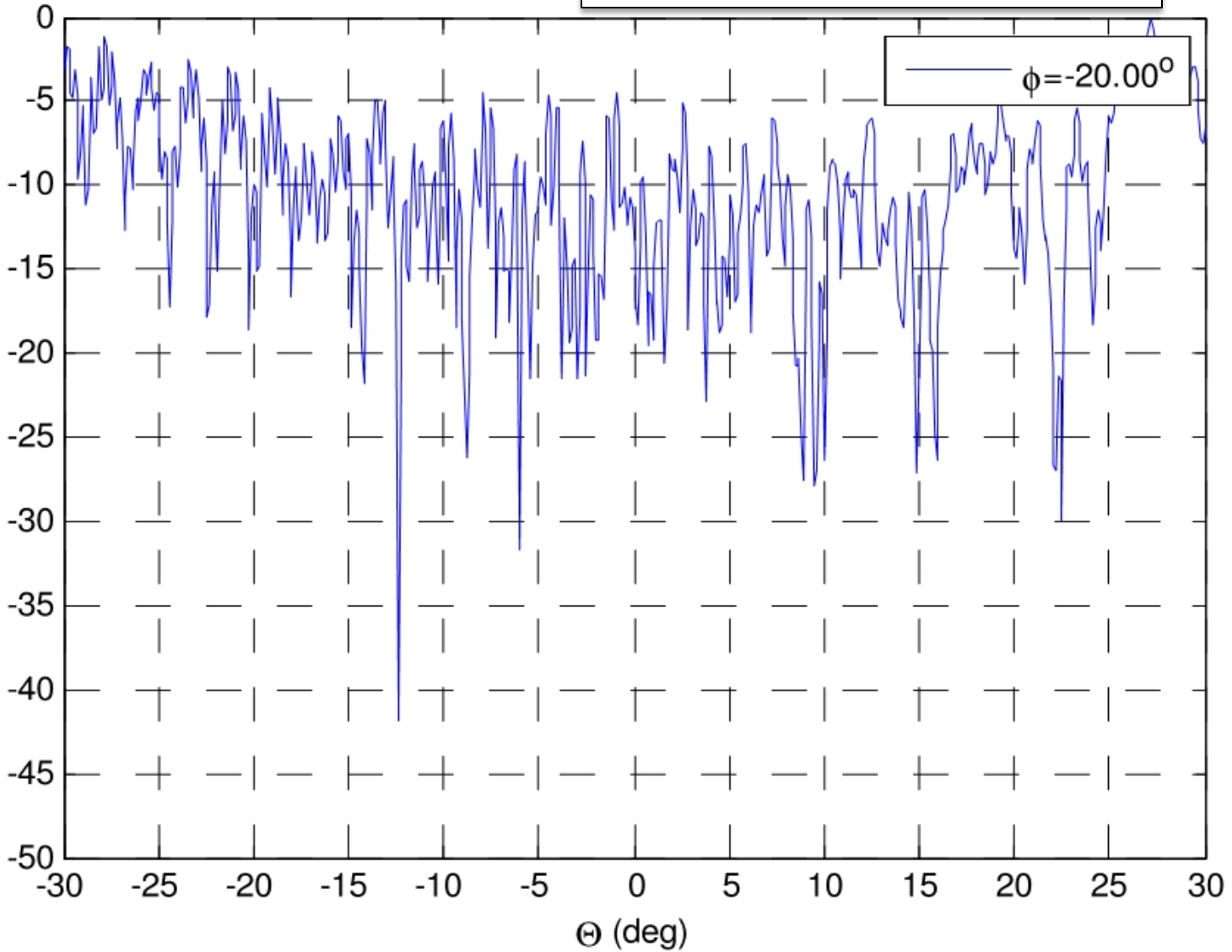
Off-axis Gain Below Peak (dBi)



Normalized pattern cuts - farfield

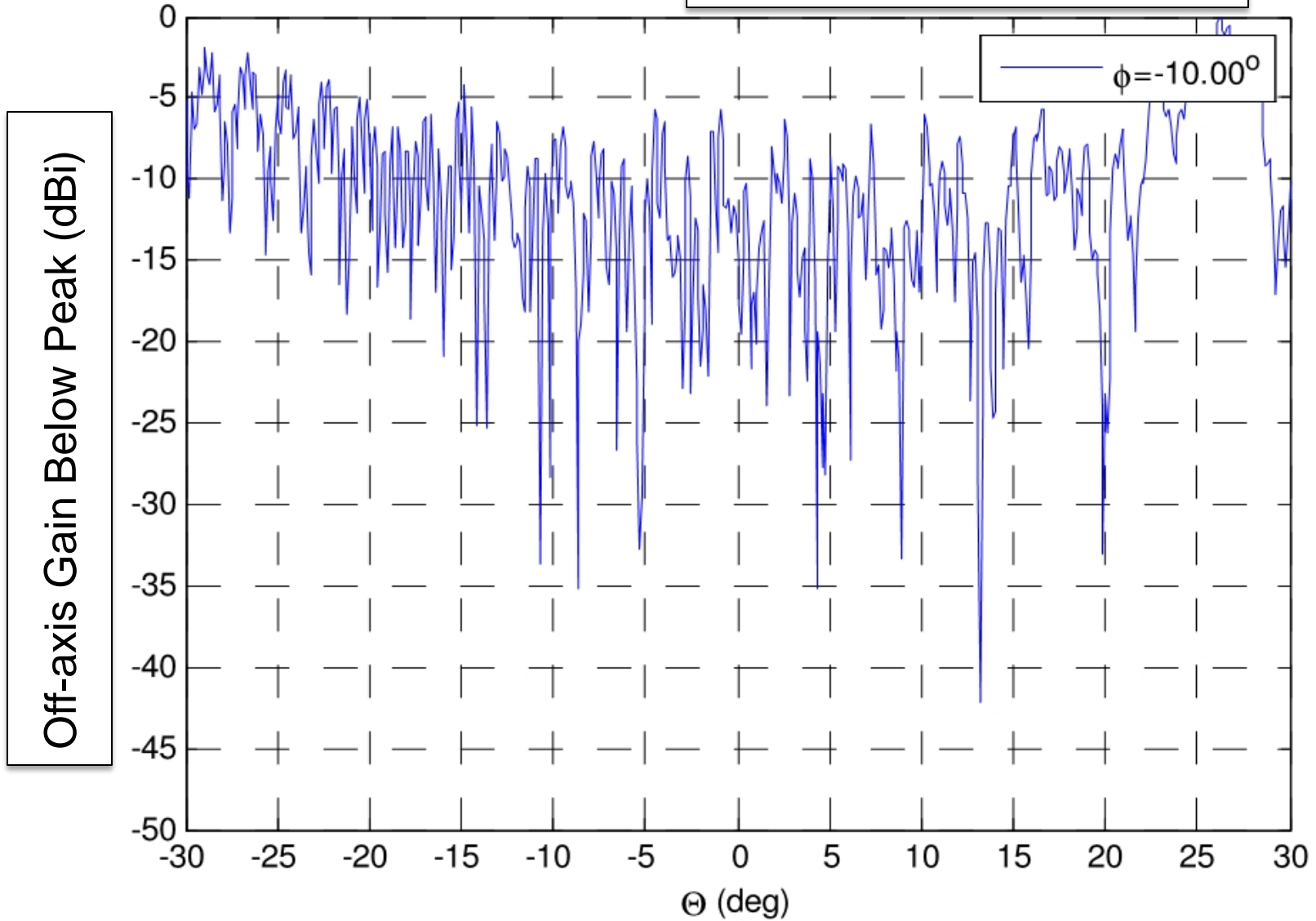
Input file: tx-17.3-lhcp--20.cut, Peak Off-axis Gain = -19.5 dBi

Off-axis Gain Below Peak (dBi)



Normalized pattern cuts - farfield

Input file: tx-17.3-lhcp--10.cut, Peak Off-axis Gain = -18.4 dBi

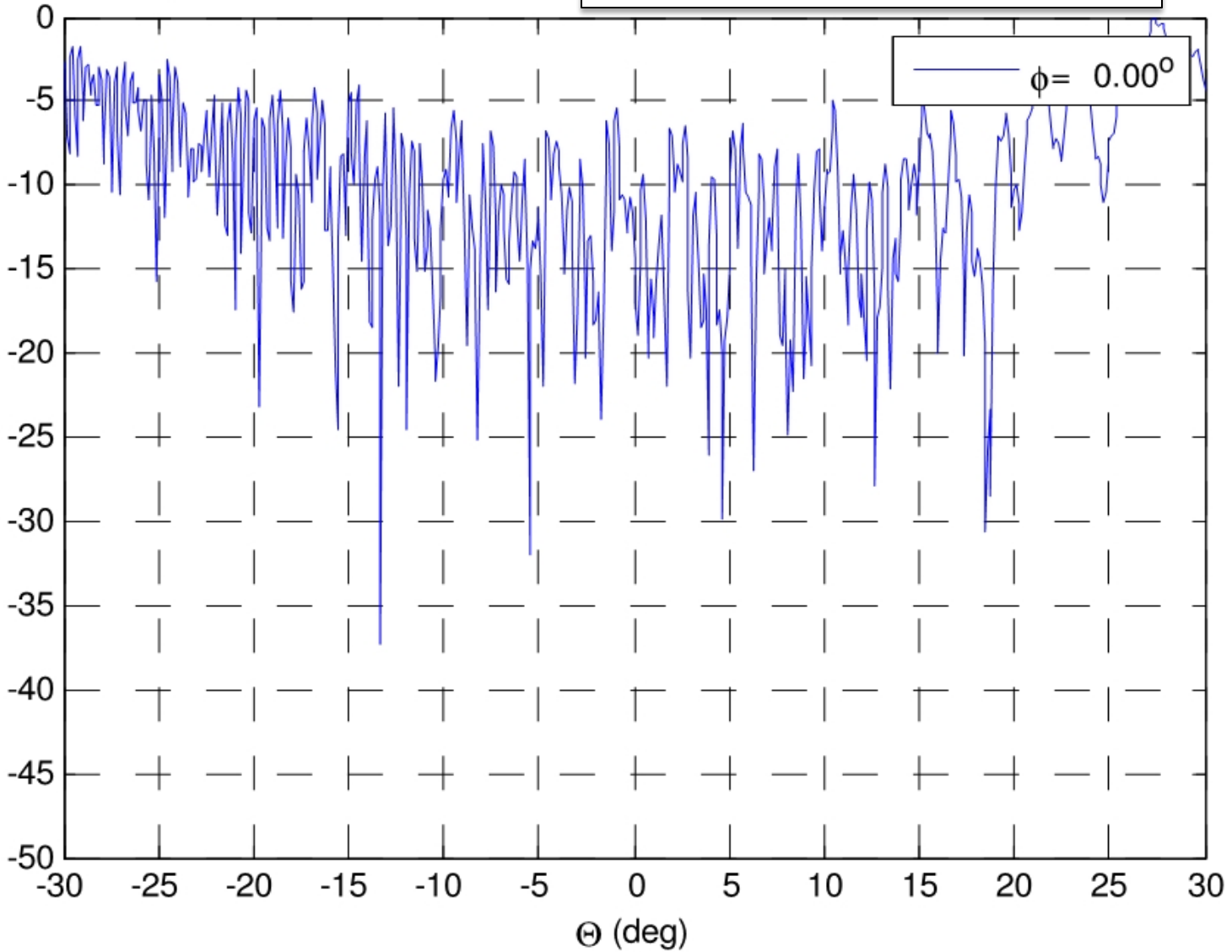


Normalized pattern cuts - farfield

Input file: tx-17.3-lhcp-0.cut,

Peak Off-axis Gain = -19.0 dBi

Off-axis Gain Below Peak (dBi)

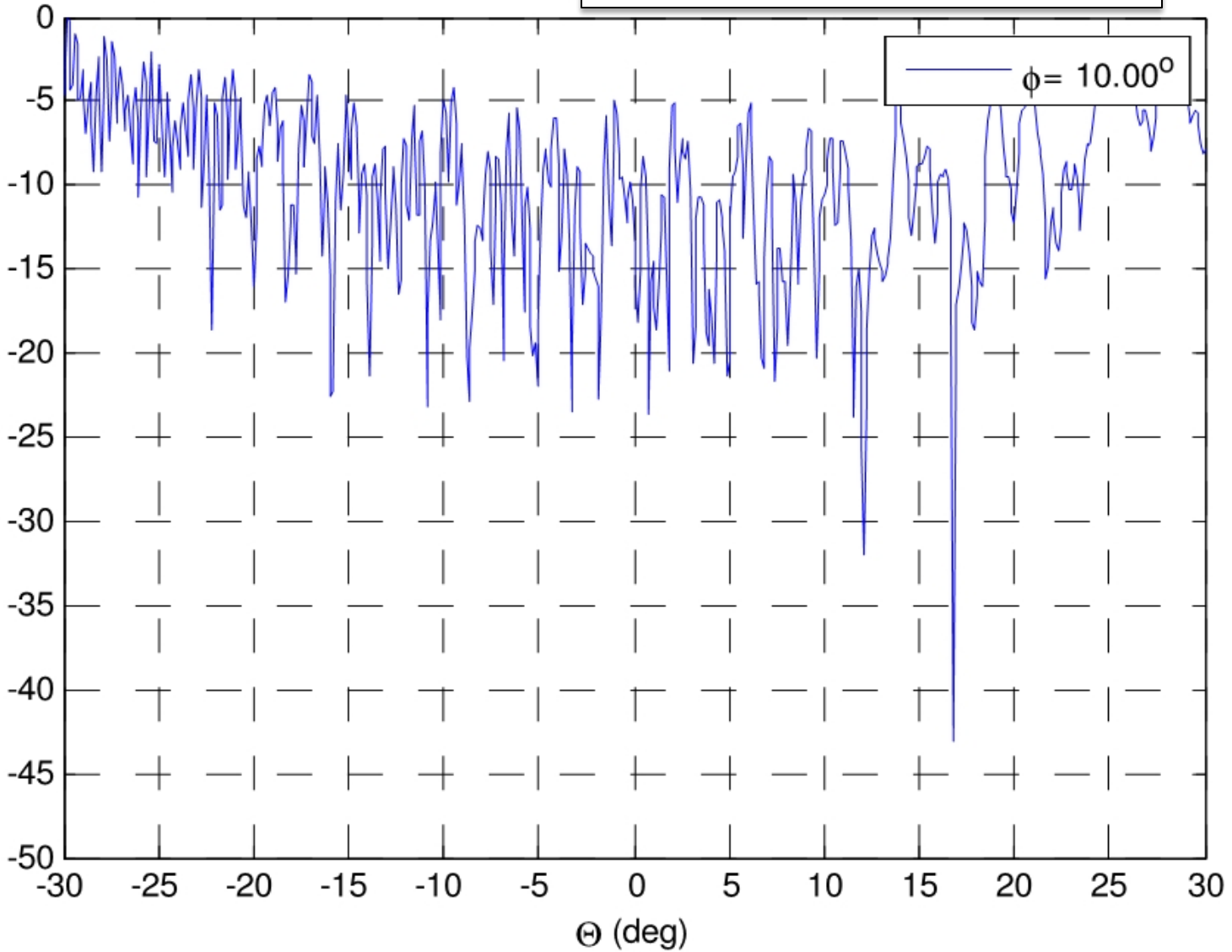


Normalized pattern cuts - farfield

Input file: tx-17.3-lhcp-10.cut,

Peak Off-axis Gain = -19.8 dBi

Off-axis Gain Below Peak (dBi)

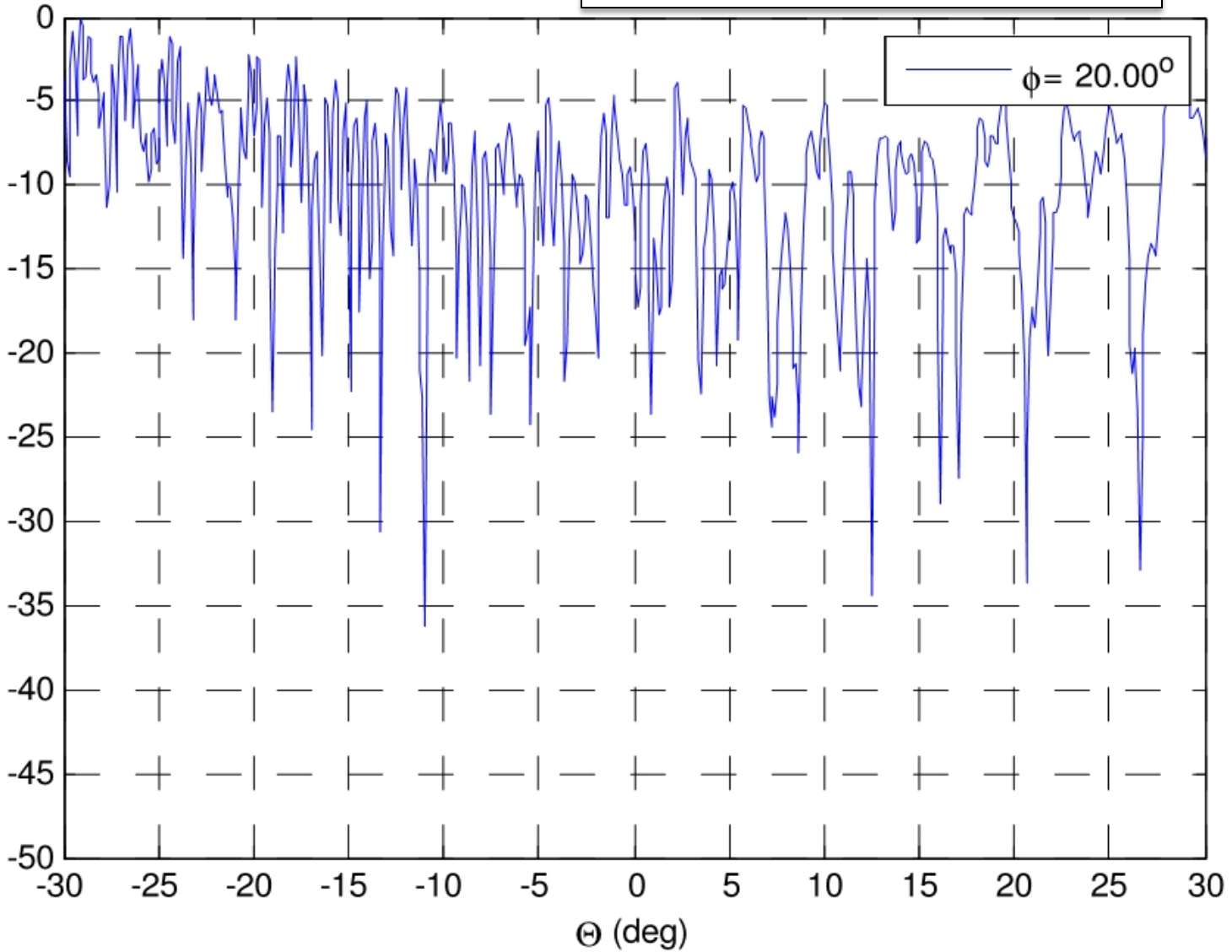


Normalized pattern cuts - farfield

Input file: tx-17.3-lhcp-20.cut,

Peak Off-axis Gain = -20.4 dBi

Off-axis Gain Below Peak (dBi)

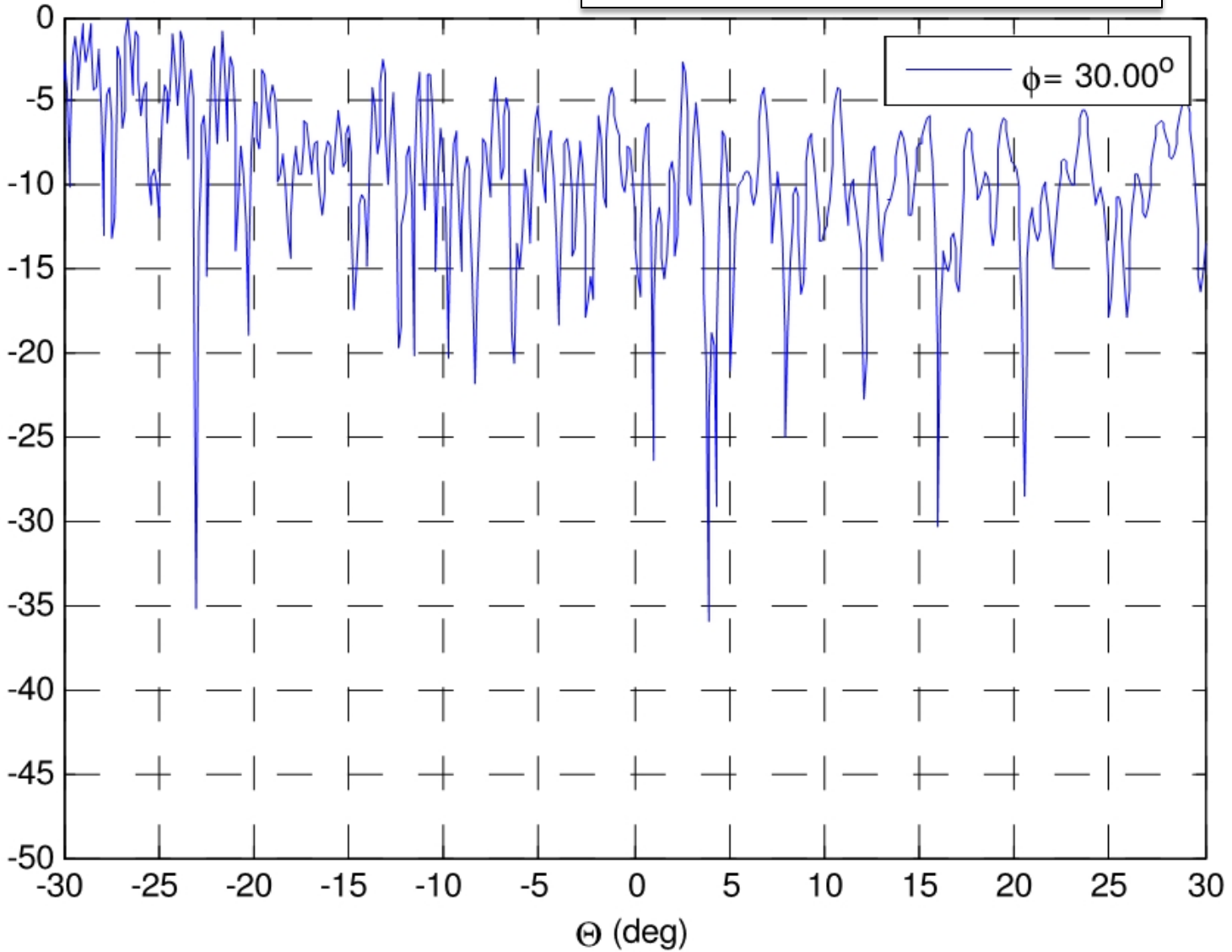


Normalized pattern cuts - farfield

Input file: tx-17.3-lhcp-30.cut,

Peak Off-axis Gain = -21.5 dBi

Off-axis Gain Below Peak (dBi)

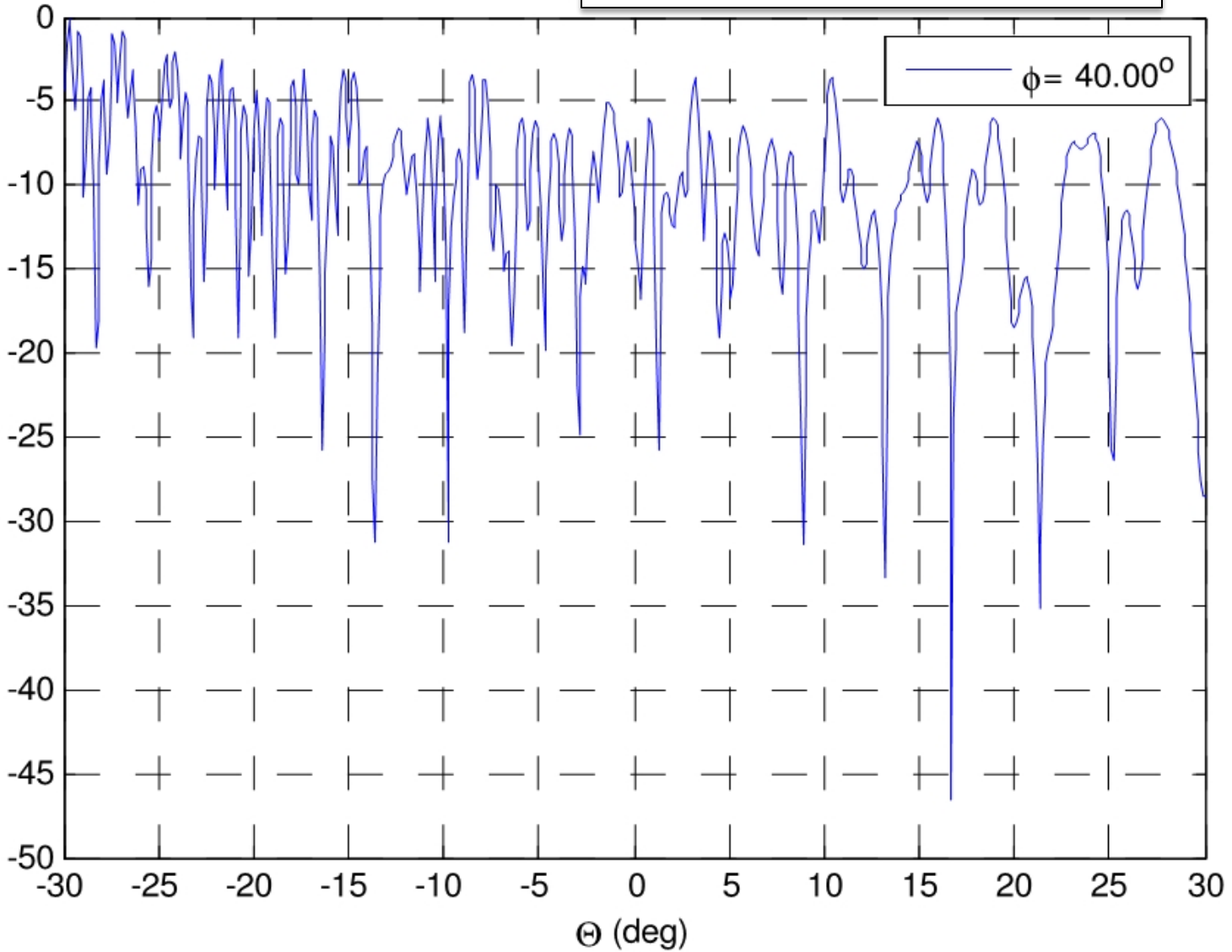


Normalized pattern cuts - farfield

Input file: tx-17.3-lhcp-40.cut,

Peak Off-axis Gain = -21.4 dBi

Off-axis Gain Below Peak (dBi)

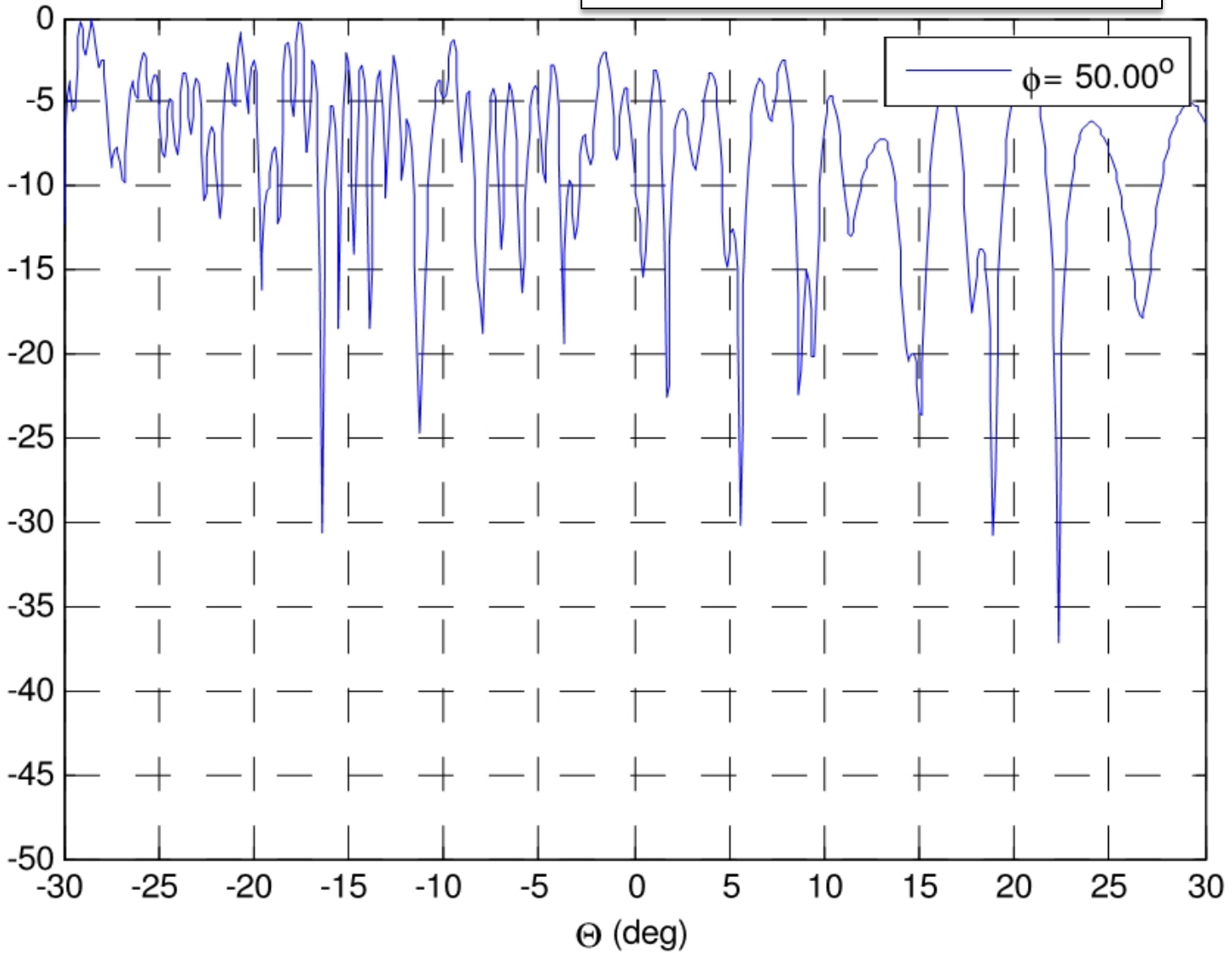


Normalized pattern cuts - farfield

Input file: tx-17.3-lhcp-50.cut,

Peak Off-axis Gain = -24.0 dBi

Off-axis Gain Below Peak (dBi)

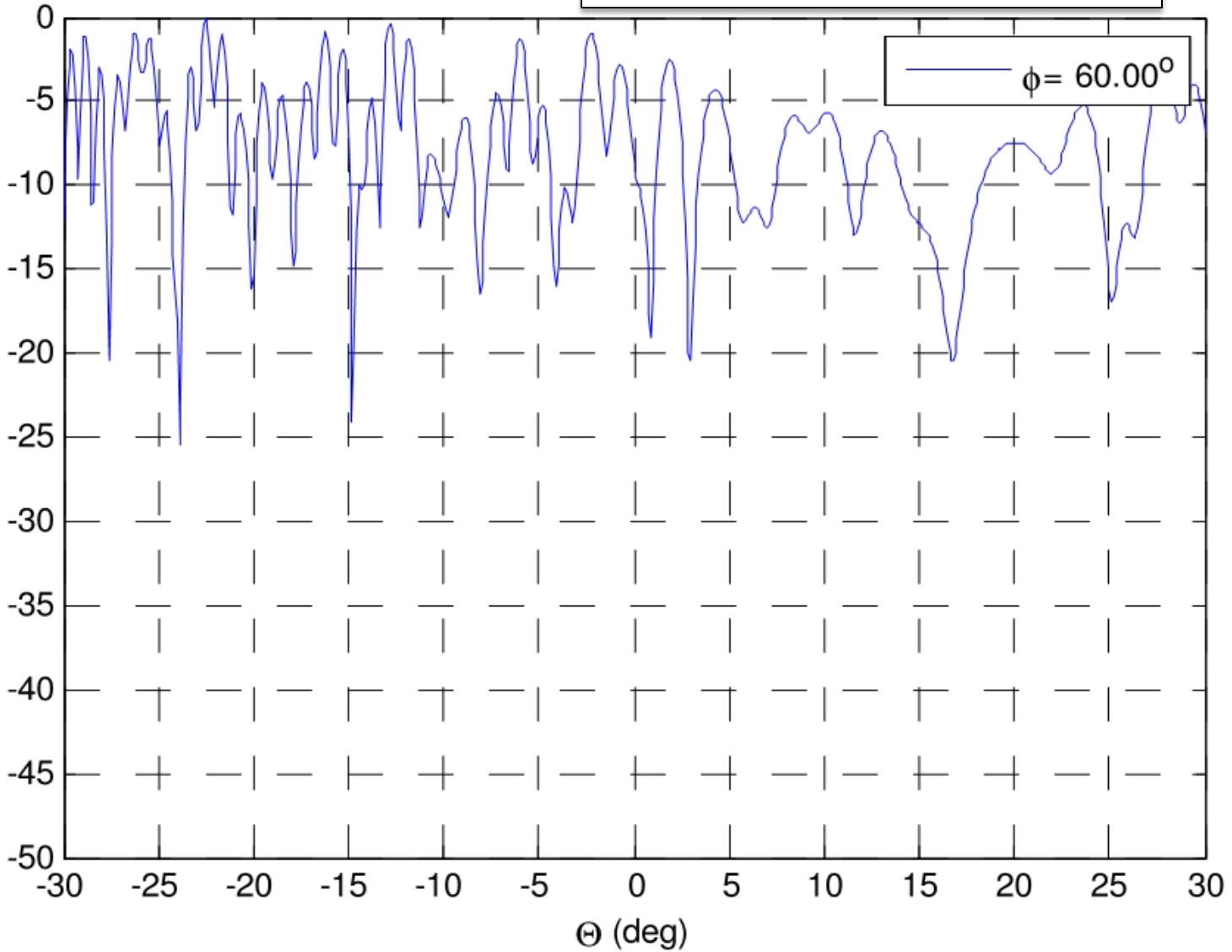


Normalized pattern cuts - farfield

Input file: tx-17.3-lhcp-60.cut,

Peak Off-axis Gain = -24.5 dBi

Off-axis Gain Below Peak (dBi)



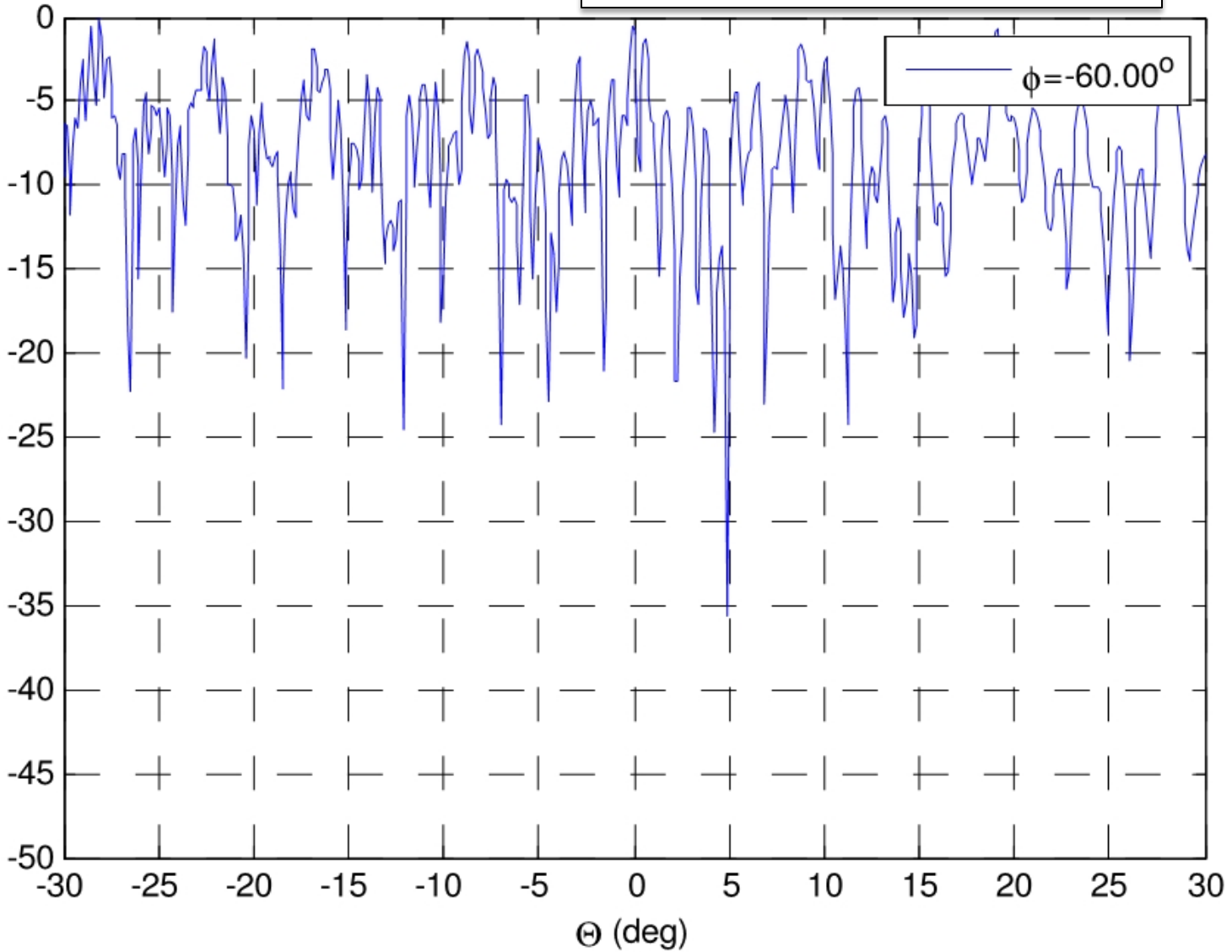
RHCP = 17.5 GHz

Normalized pattern cuts - farfield

Input file: tx-17.5-rhcp--60.cut,

Peak Off-axis Gain = -24.3 dBi

Off-axis Gain Below Peak (dBi)

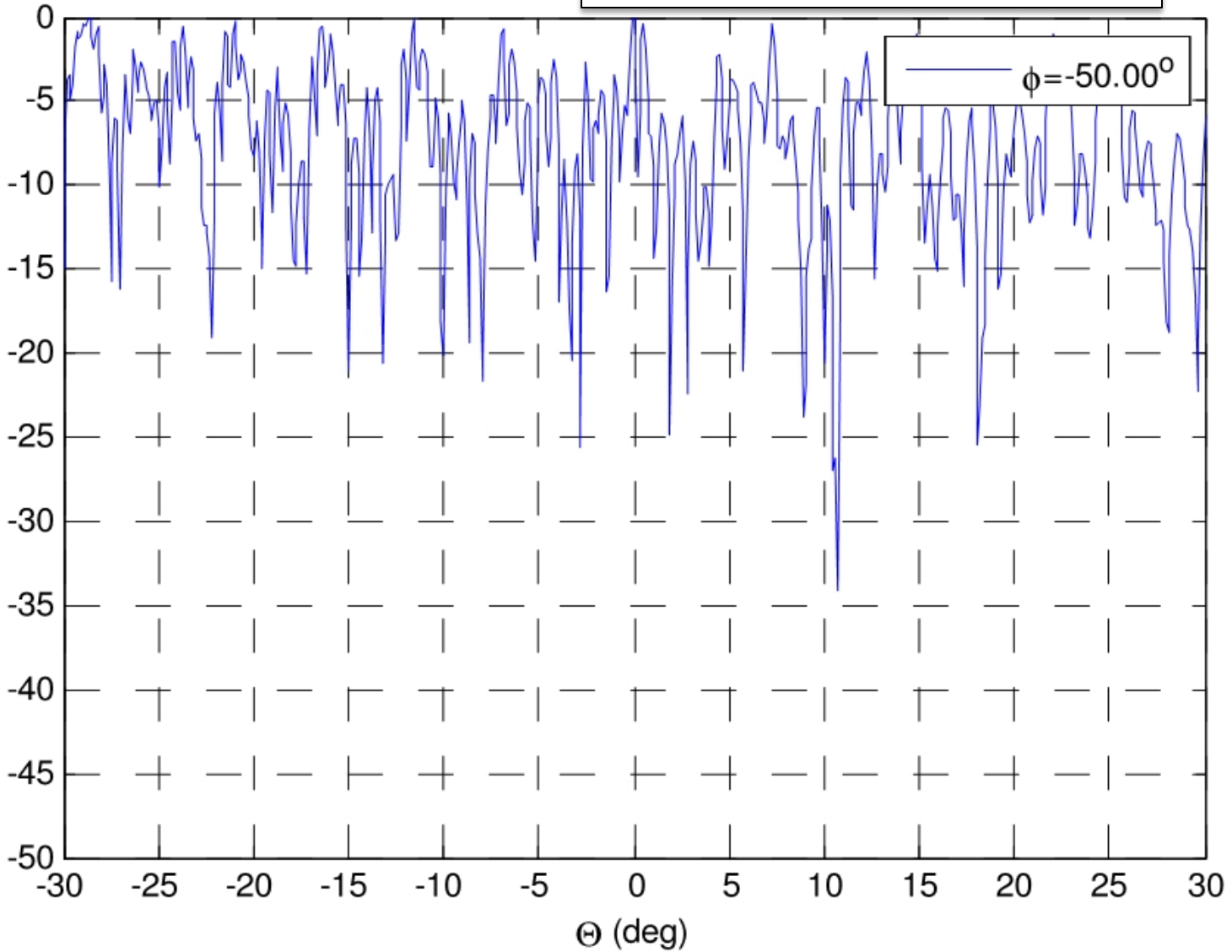


Normalized pattern cuts - farfield

Input file: tx-17.5-rhcp--50.cut,

Peak Off-axis Gain = -25.0 dBi

Off-axis Gain Below Peak (dBi)

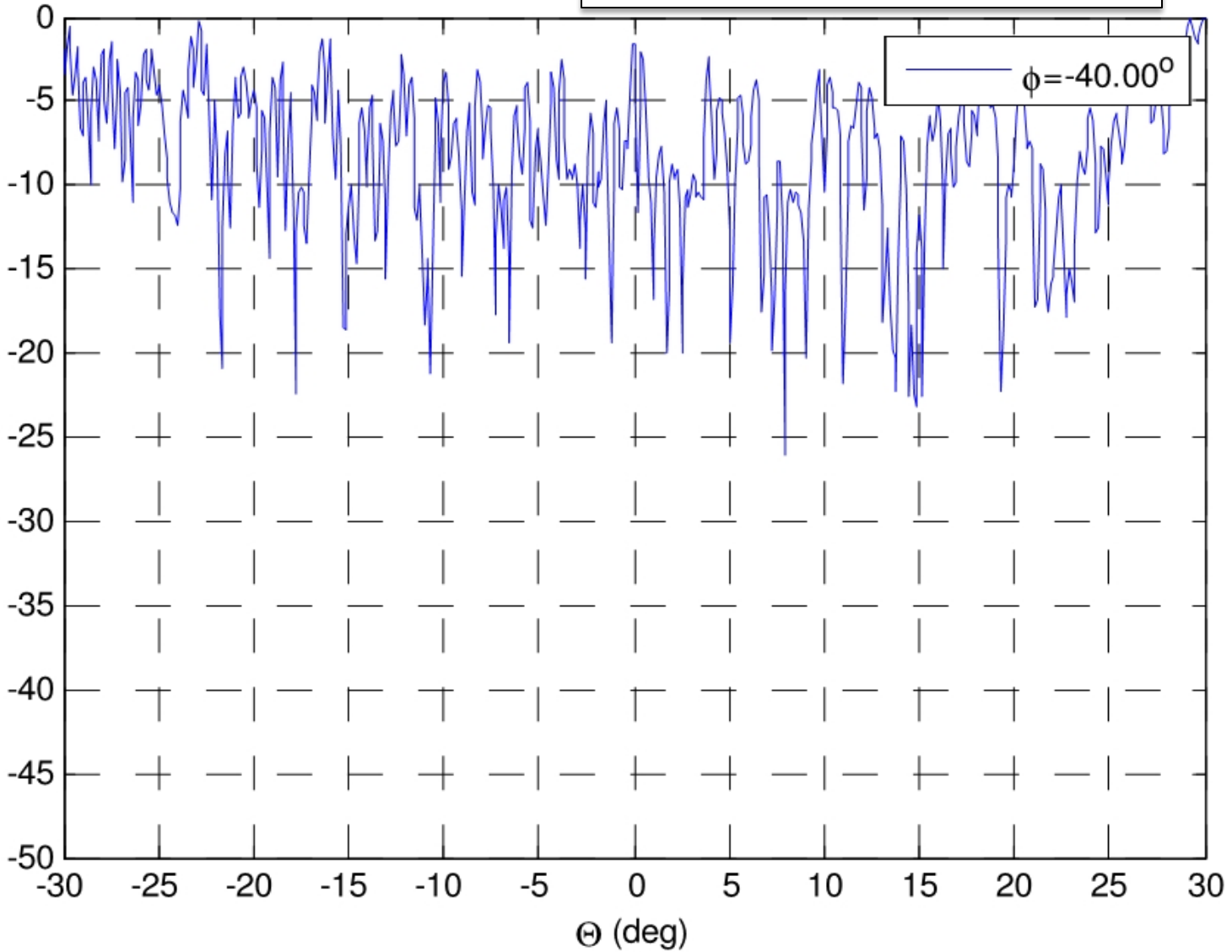


Normalized pattern cuts - farfield

Input file: tx-17.5-rhcp--40.cut,

Peak Off-axis Gain = -23.5 dBi

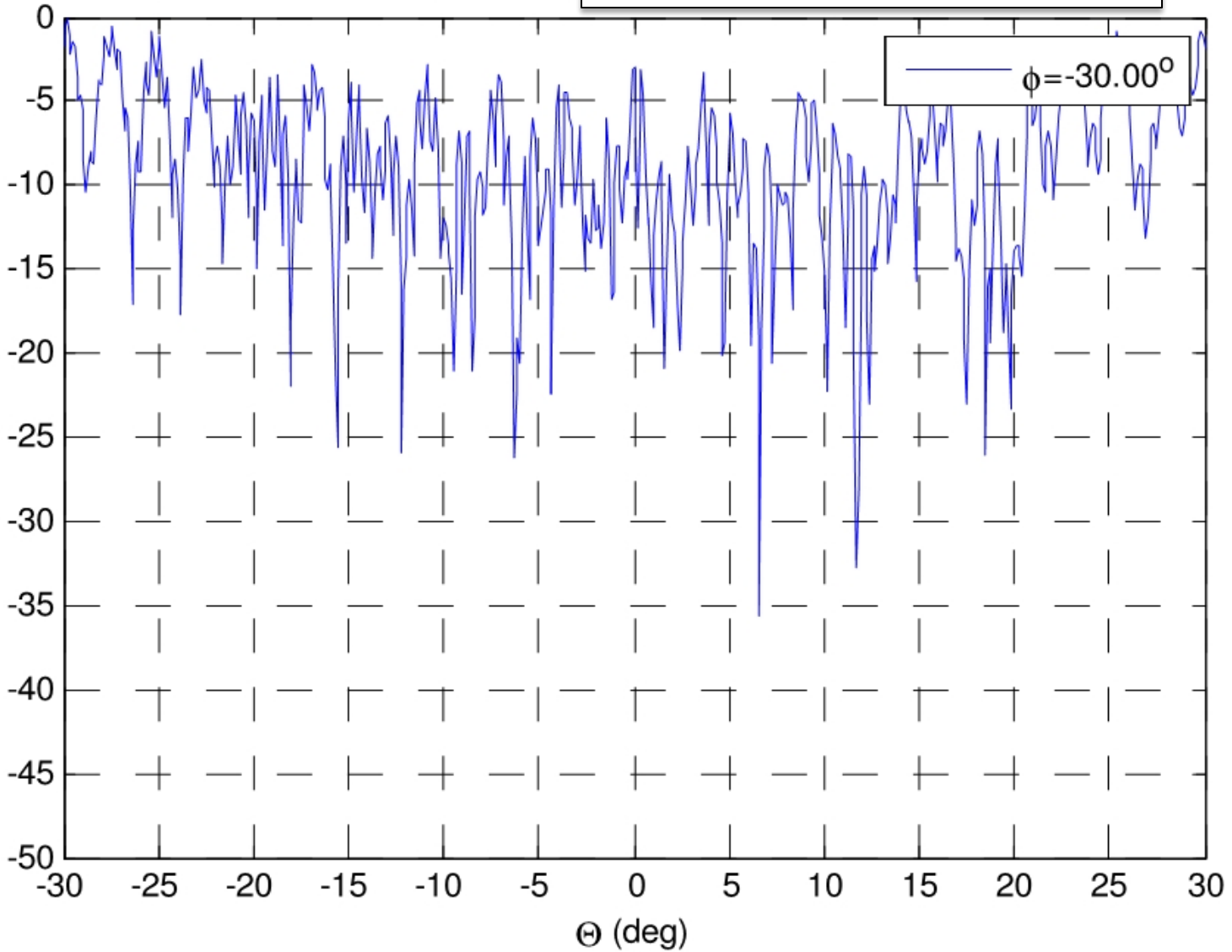
Off-axis Gain Below Peak (dBi)



Normalized pattern cuts - farfield

Input file: tx-17.5-rhcp--30.cut, Peak Off-axis Gain = -22.1 dBi

Off-axis Gain Below Peak (dBi)

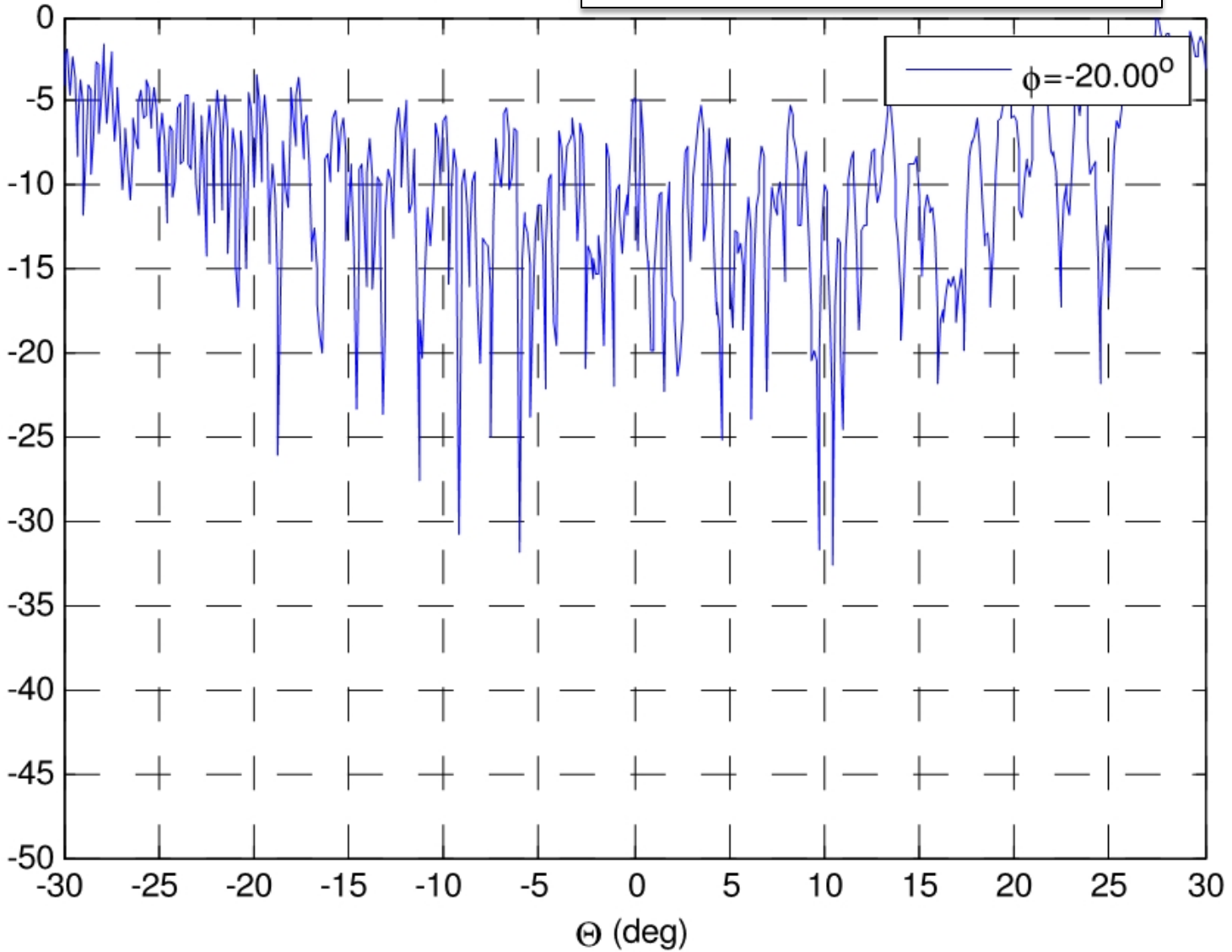


Normalized pattern cuts - farfield

Input file: tx-17.5-rhcp--20.cut,

Peak Off-axis Gain = -20.3 dBi

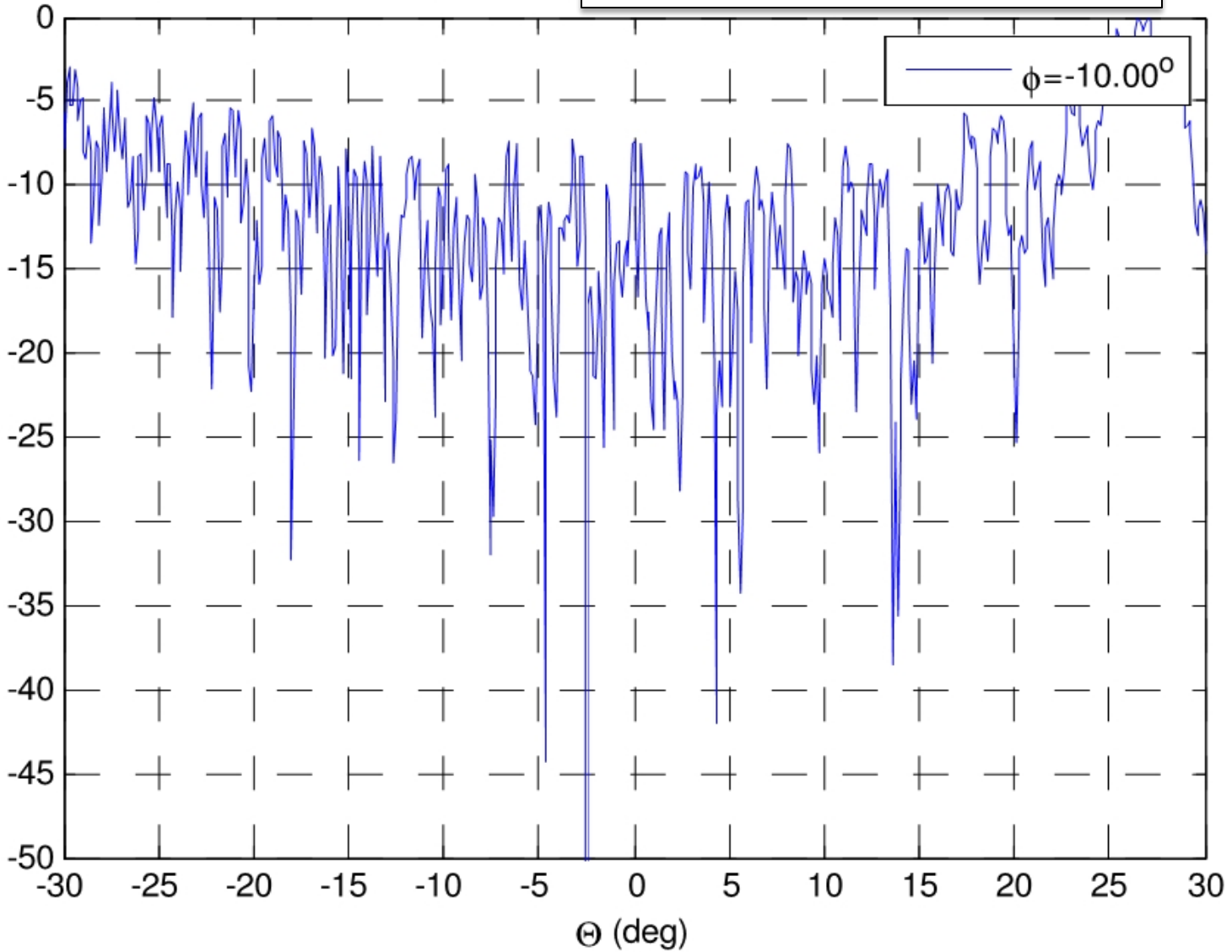
Off-axis Gain Below Peak (dBi)



Normalized pattern cuts - farfield

Input file: tx-17.5-rhcp--10.cut, Peak Off-axis Gain = -17.7 dBi

Off-axis Gain Below Peak (dBi)

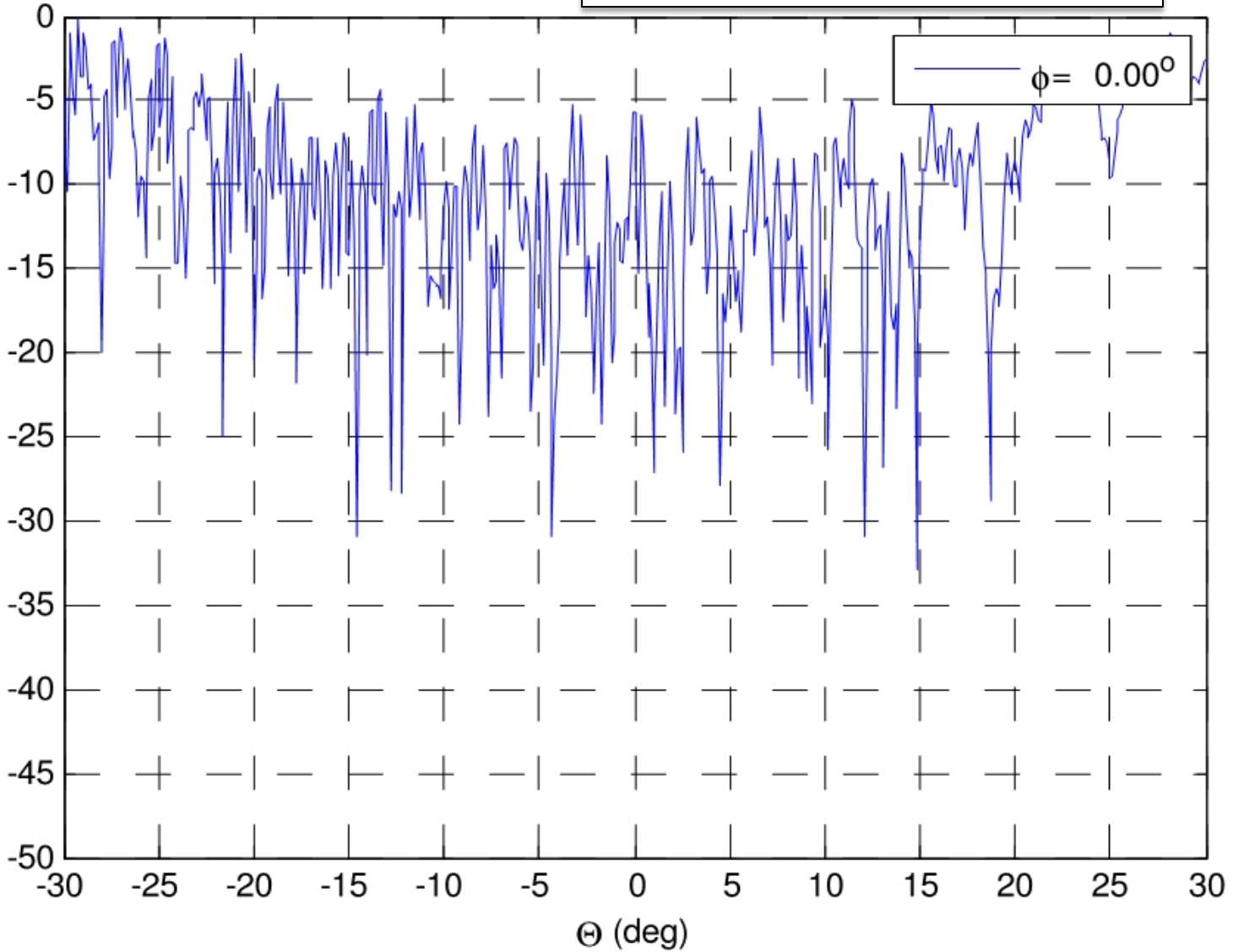


Normalized pattern cuts - farfield

Input file: tx-17.5-rhcp-0.cut,

Peak Off-axis Gain = -19.4 dBi

Off-axis Gain Below Peak (dBi)

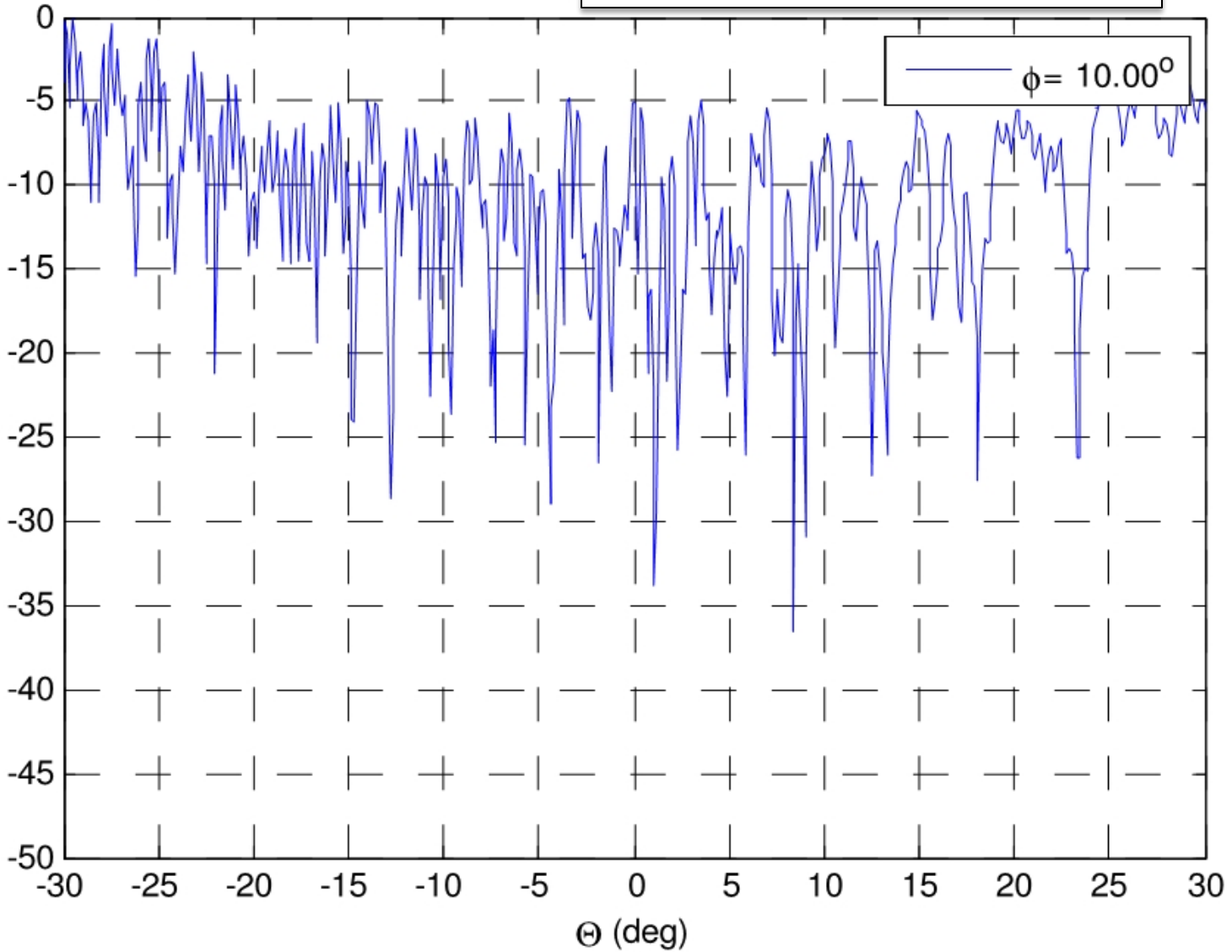


Normalized pattern cuts - farfield

Input file: tx-17.5-rhcp-10.cut,

Peak Off-axis Gain = -19.3 dBi

Off-axis Gain Below Peak (dBi)

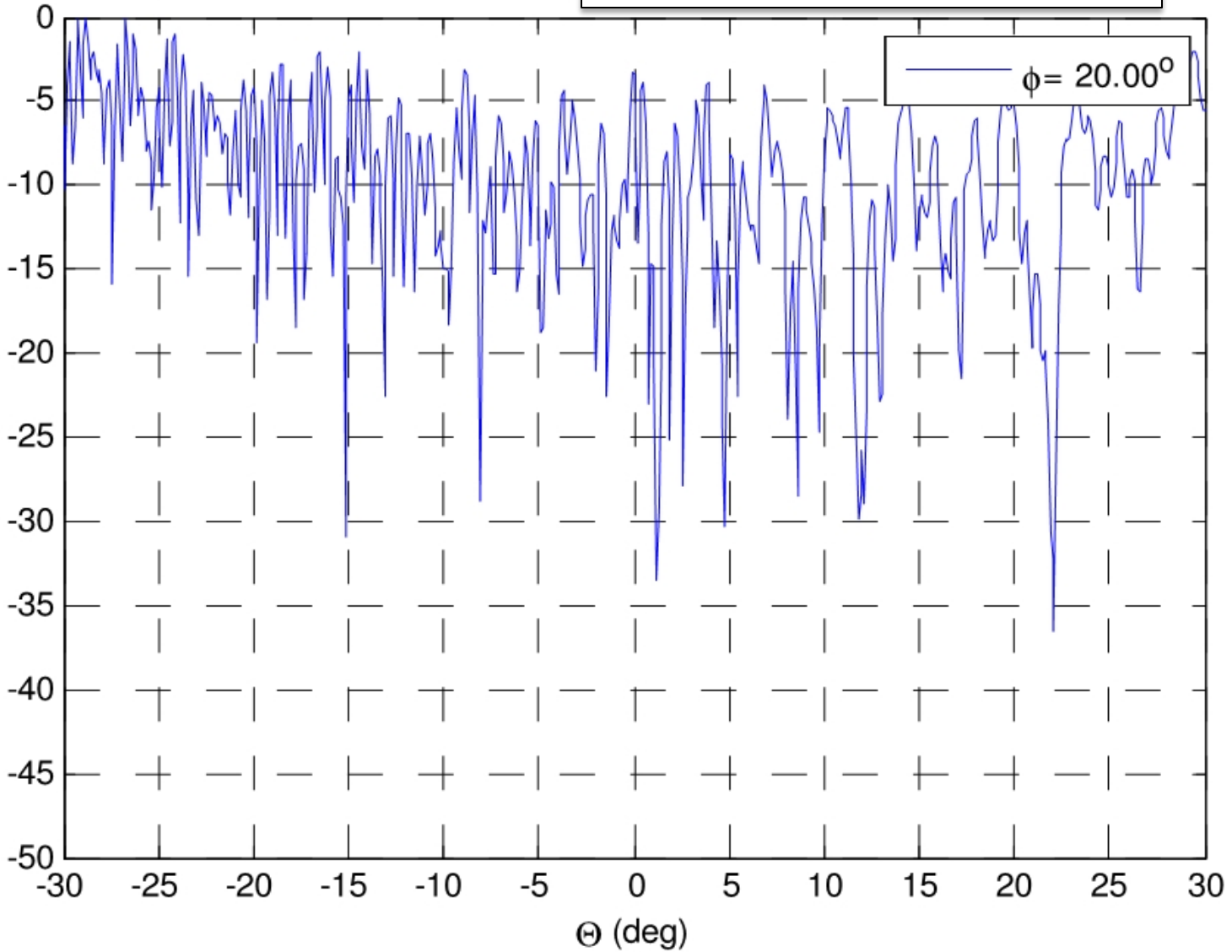


Normalized pattern cuts - farfield

Input file: tx-17.5-rhcp-20.cut,

Peak Off-axis Gain = -22.3 dBi

Off-axis Gain Below Peak (dBi)

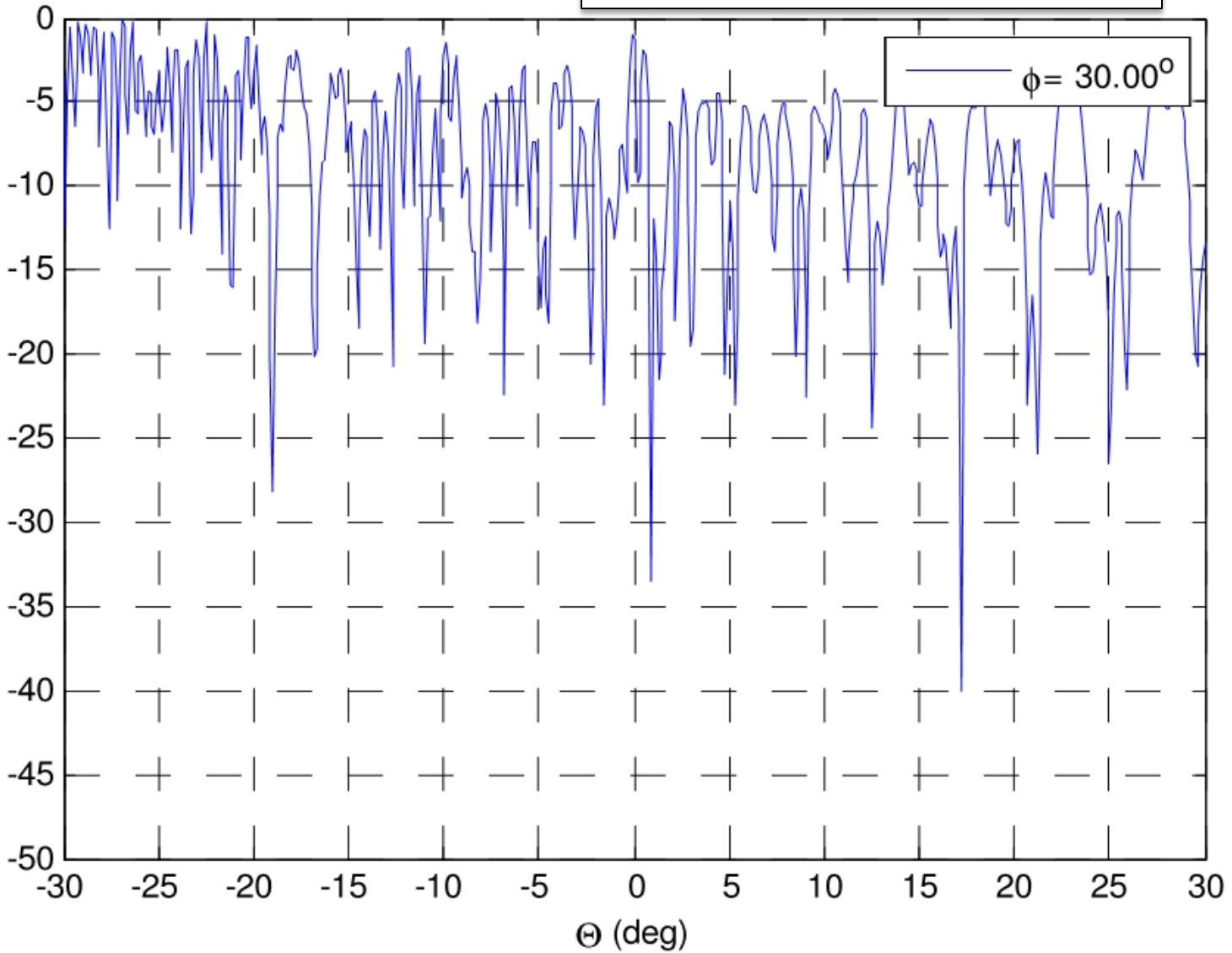


Normalized pattern cuts - farfield

Input file: tx-17.5-rhcp-30.cut,

Peak Off-axis Gain = -24.4 dBi

Off-axis Gain Below Peak (dBi)

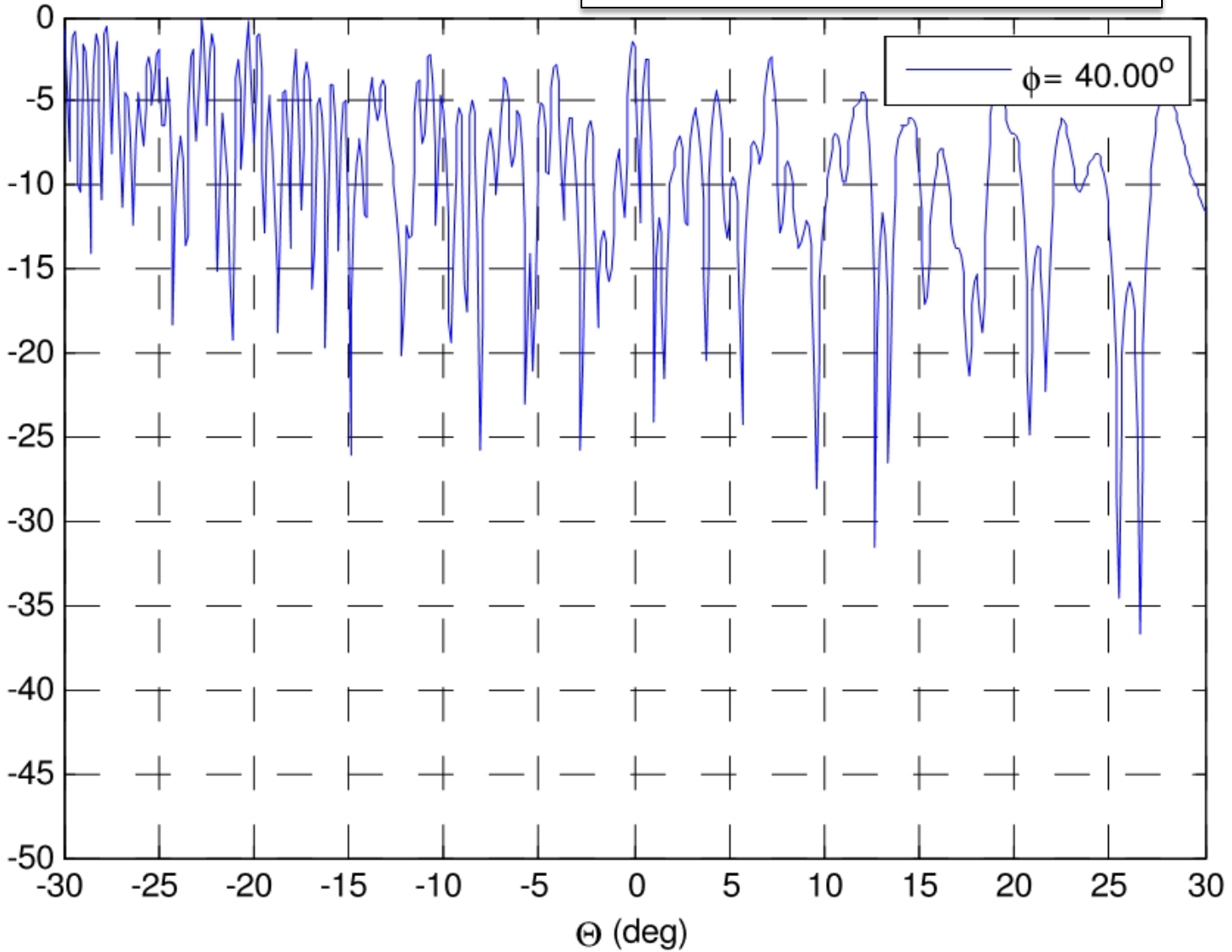


Normalized pattern cuts - farfield

Input file: tx-17.5-rhcp-40.cut,

Peak Off-axis Gain = -24.0 dBi

Off-axis Gain Below Peak (dBi)

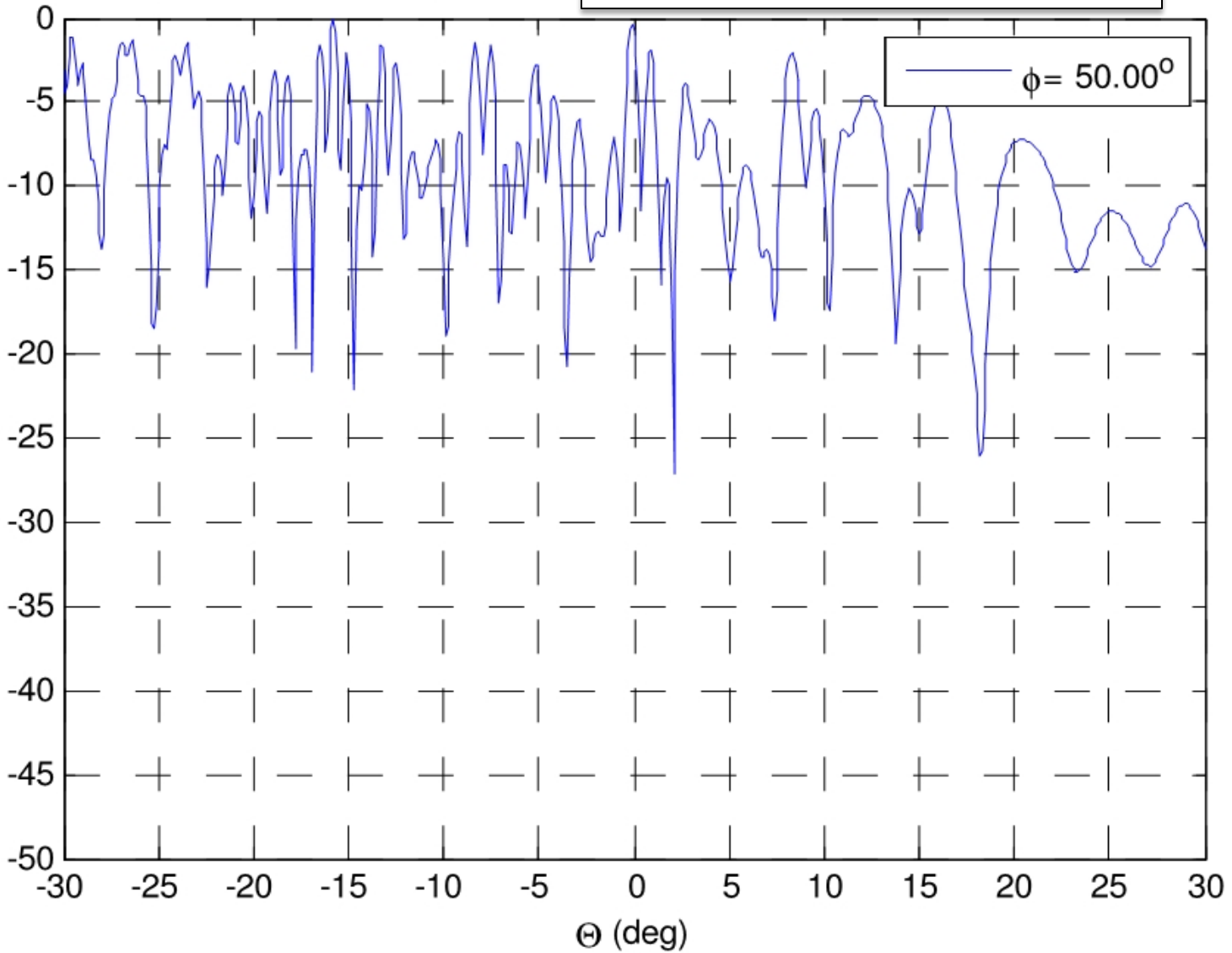


Normalized pattern cuts - farfield

Input file: tx-17.5-rhcp-50.cut,

Peak Off-axis Gain = -23.9 dBi

Off-axis Gain Below Peak (dBi)

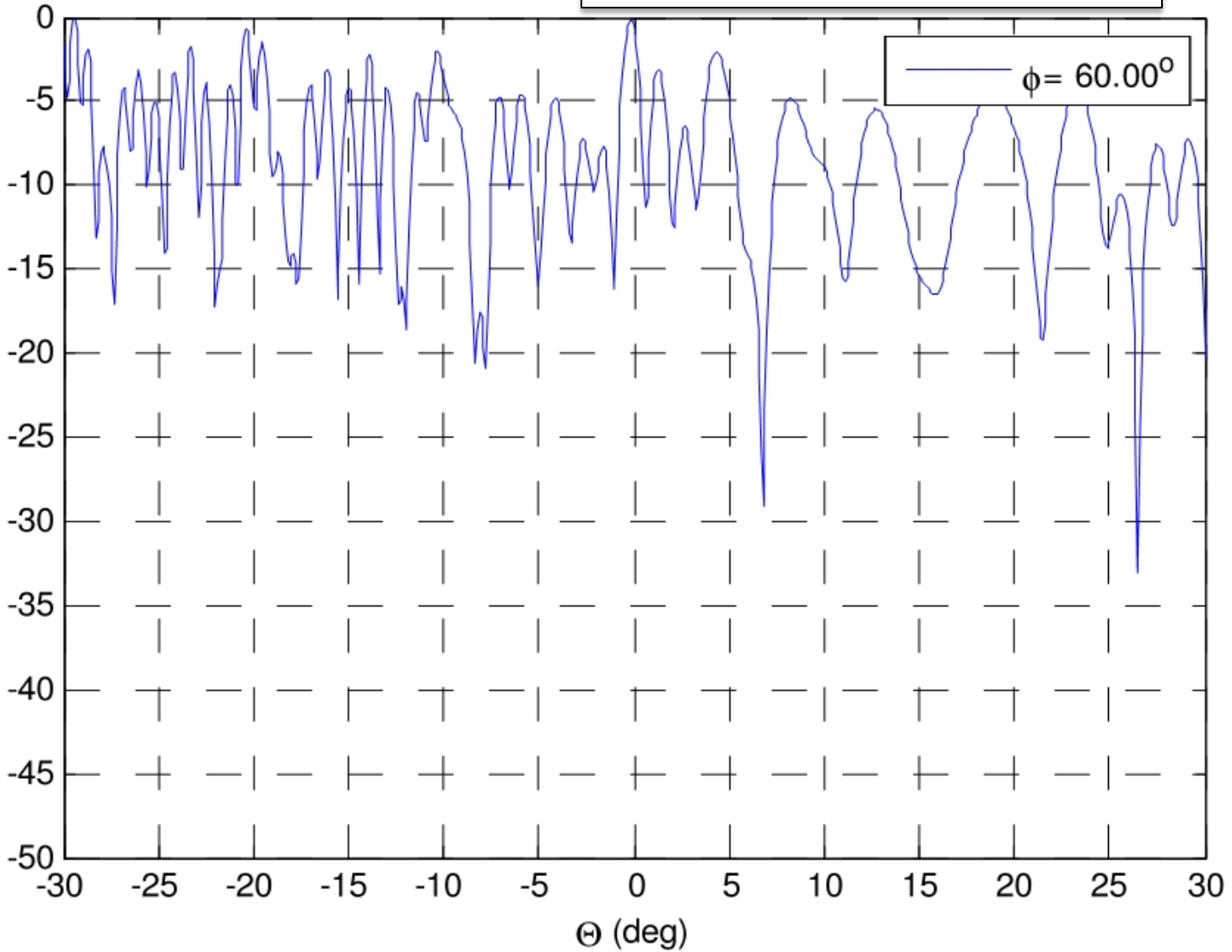


Normalized pattern cuts - farfield

Input file: tx-17.5-rhcp-60.cut,

Peak Off-axis Gain = -25.1 dBi

Off-axis Gain Below Peak (dBi)



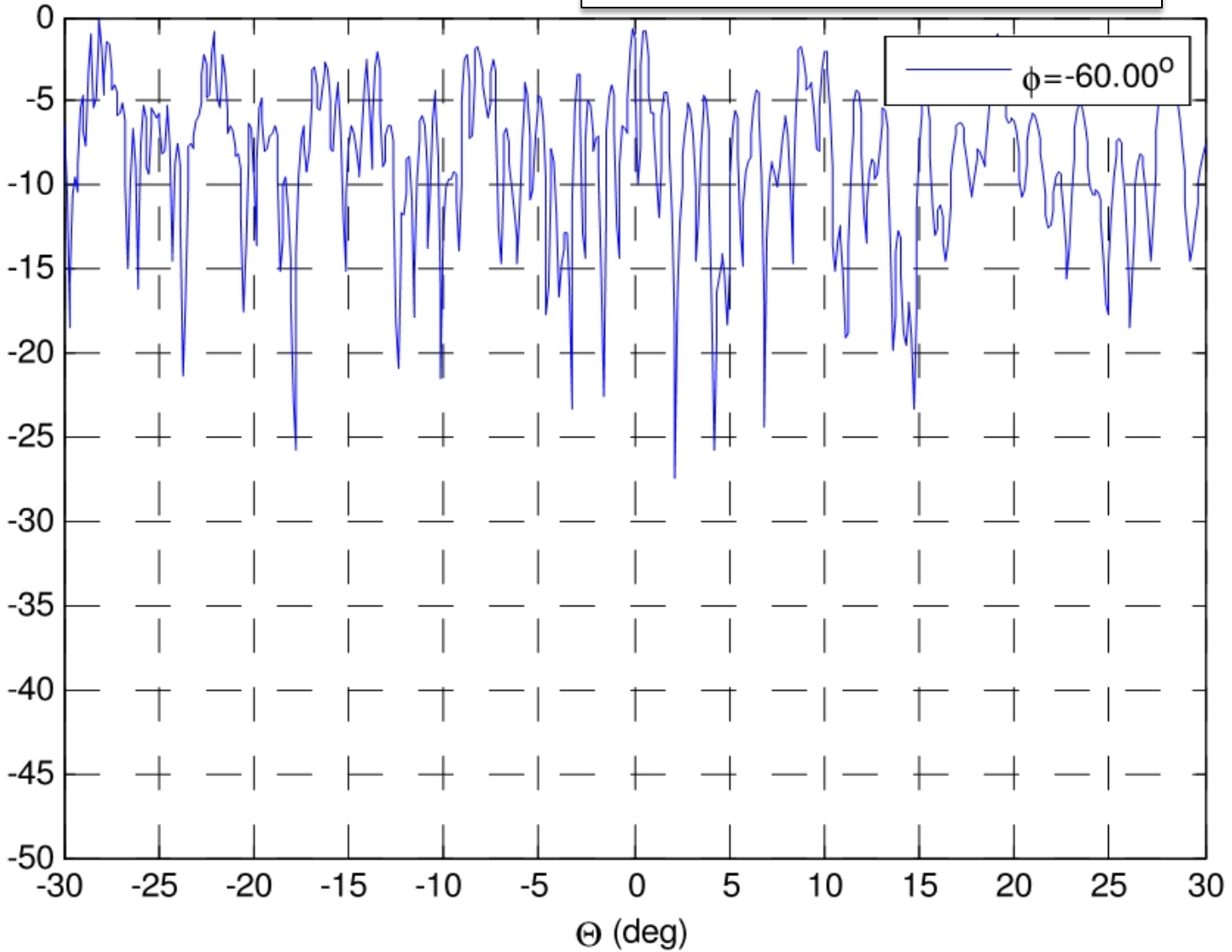
LHCP = 17.5 GHz

Normalized pattern cuts - farfield

Input file: tx-17.5-lhcp--60.cut,

Peak Off-axis Gain = -24.9 dBi

Off-axis Gain Below Peak (dBi)

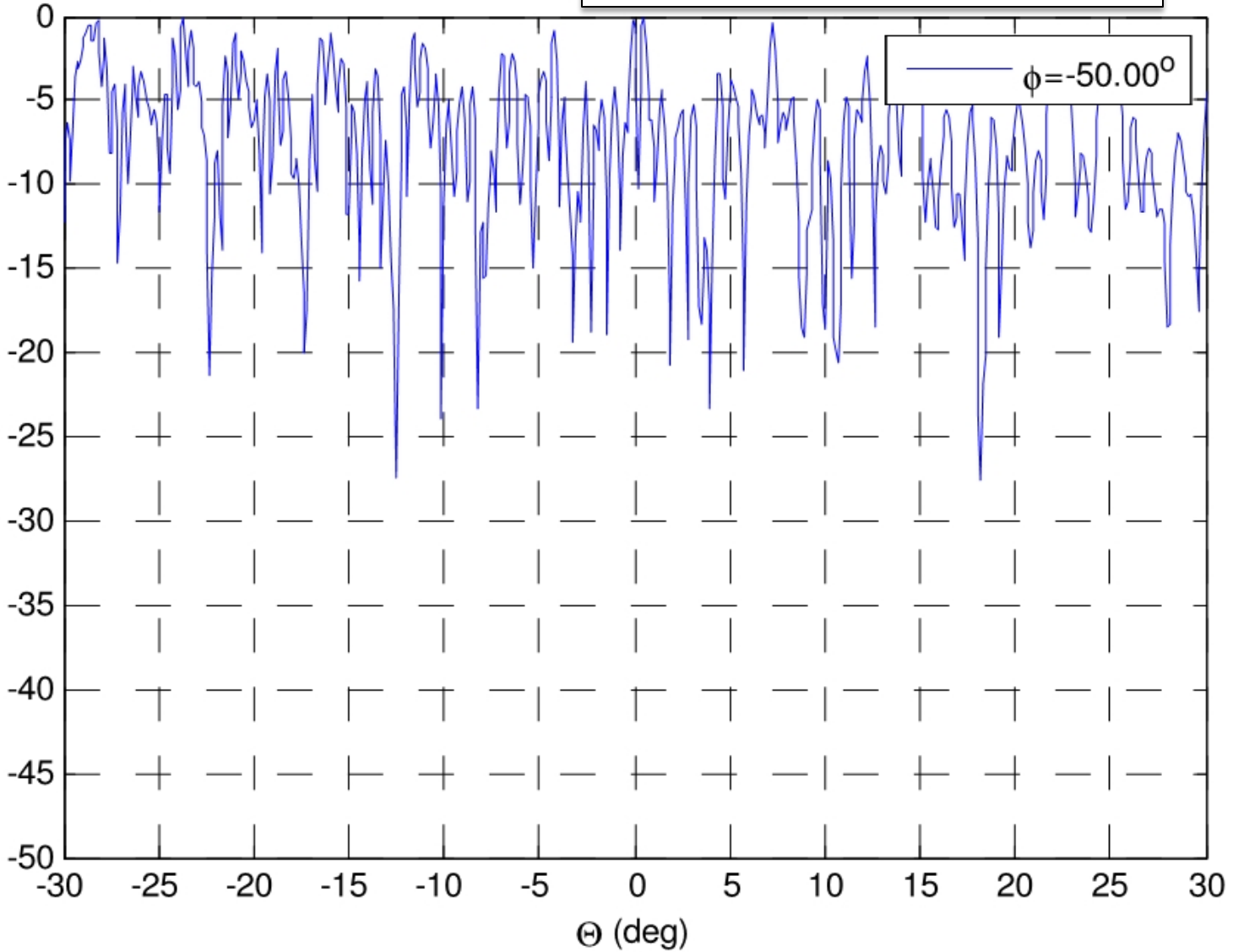


Normalized pattern cuts - farfield

Input file: tx-17.5-lhcp--50.cut,

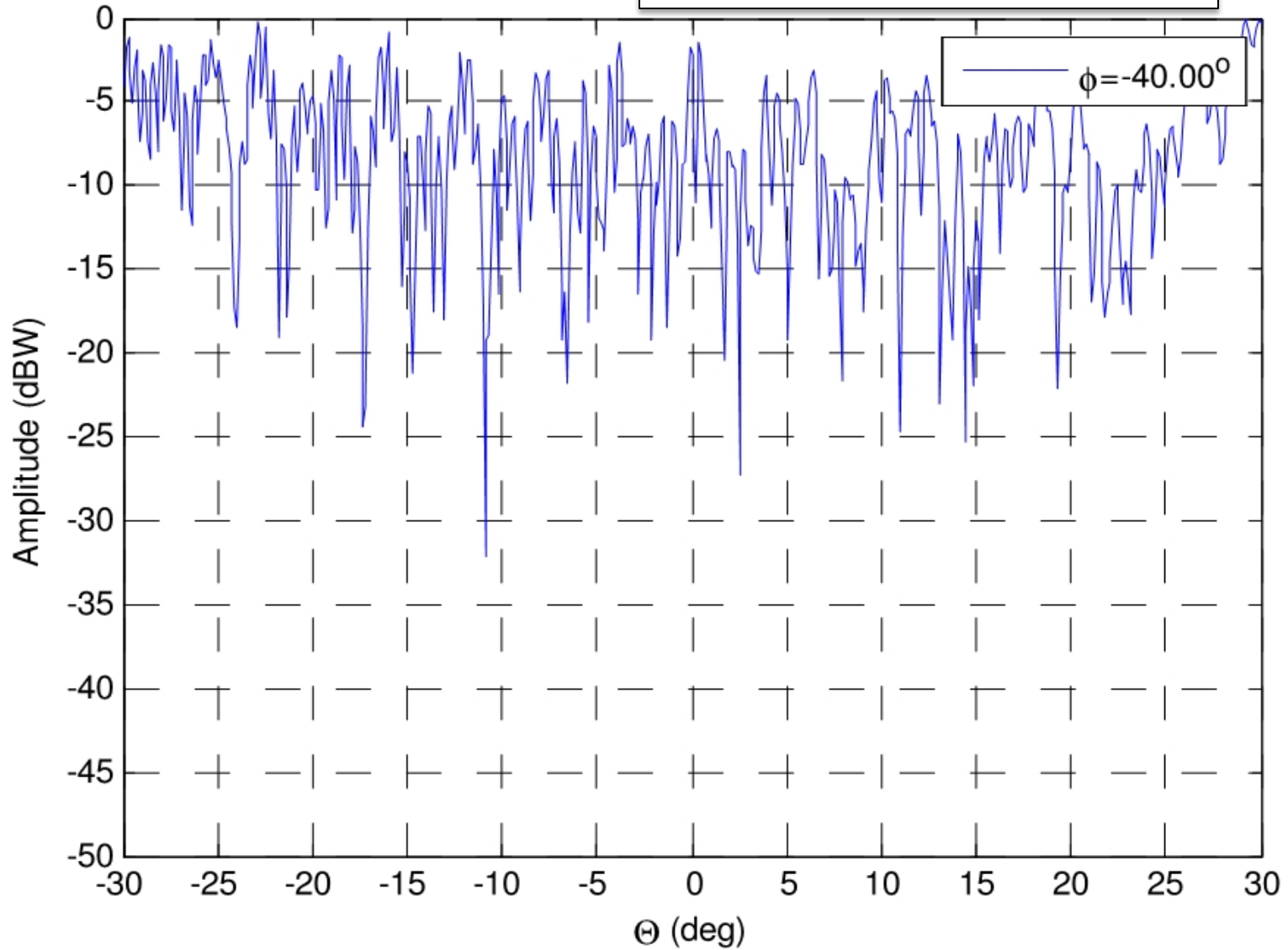
Peak Off-axis Gain = -25.5 dBi

Off-axis Gain Below Peak (dBi)



Normalized pattern cuts - farfield

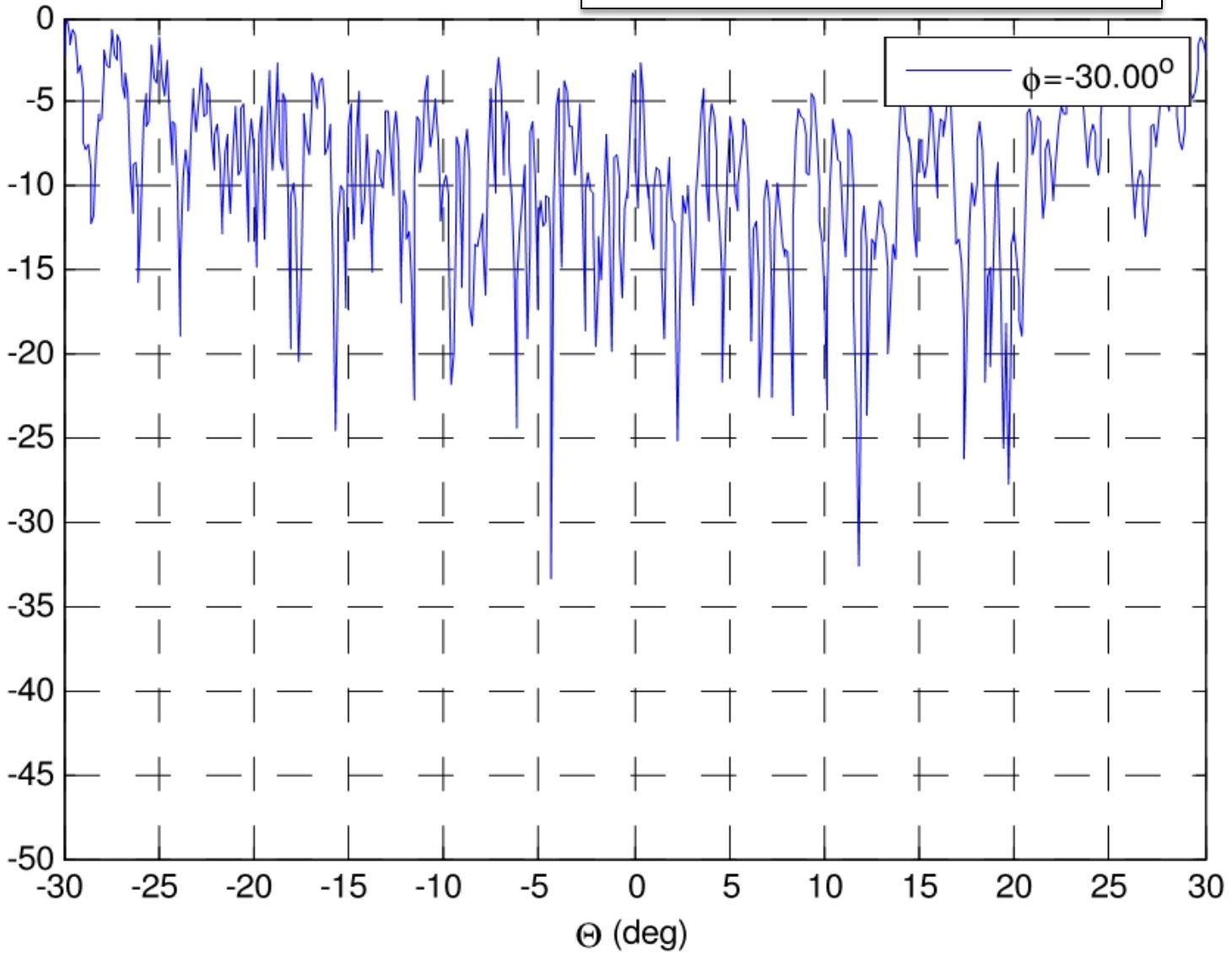
Input file: tx-17.5-lhcp--40.cut, Peak Off-axis Gain = -24.1 dBi



Normalized pattern cuts - farfield

Input file: tx-17.5-lhcp--30.cut, Peak Off-axis Gain = -22.6 dBi

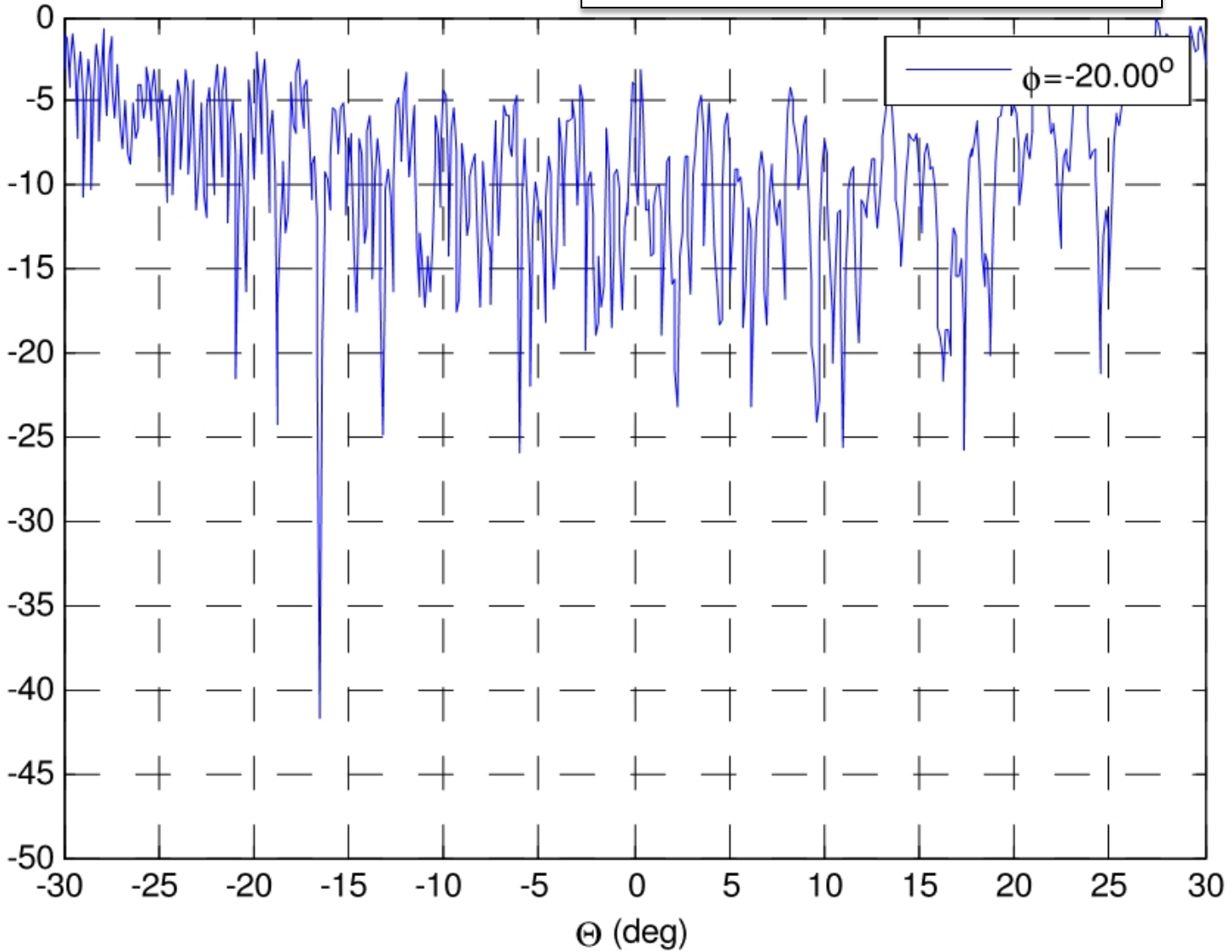
Off-axis Gain Below Peak (dBi)



Normalized pattern cuts - farfield

Input file: tx-17.5-lhcp--20.cut, Peak Off-axis Gain = -22.1 dBi

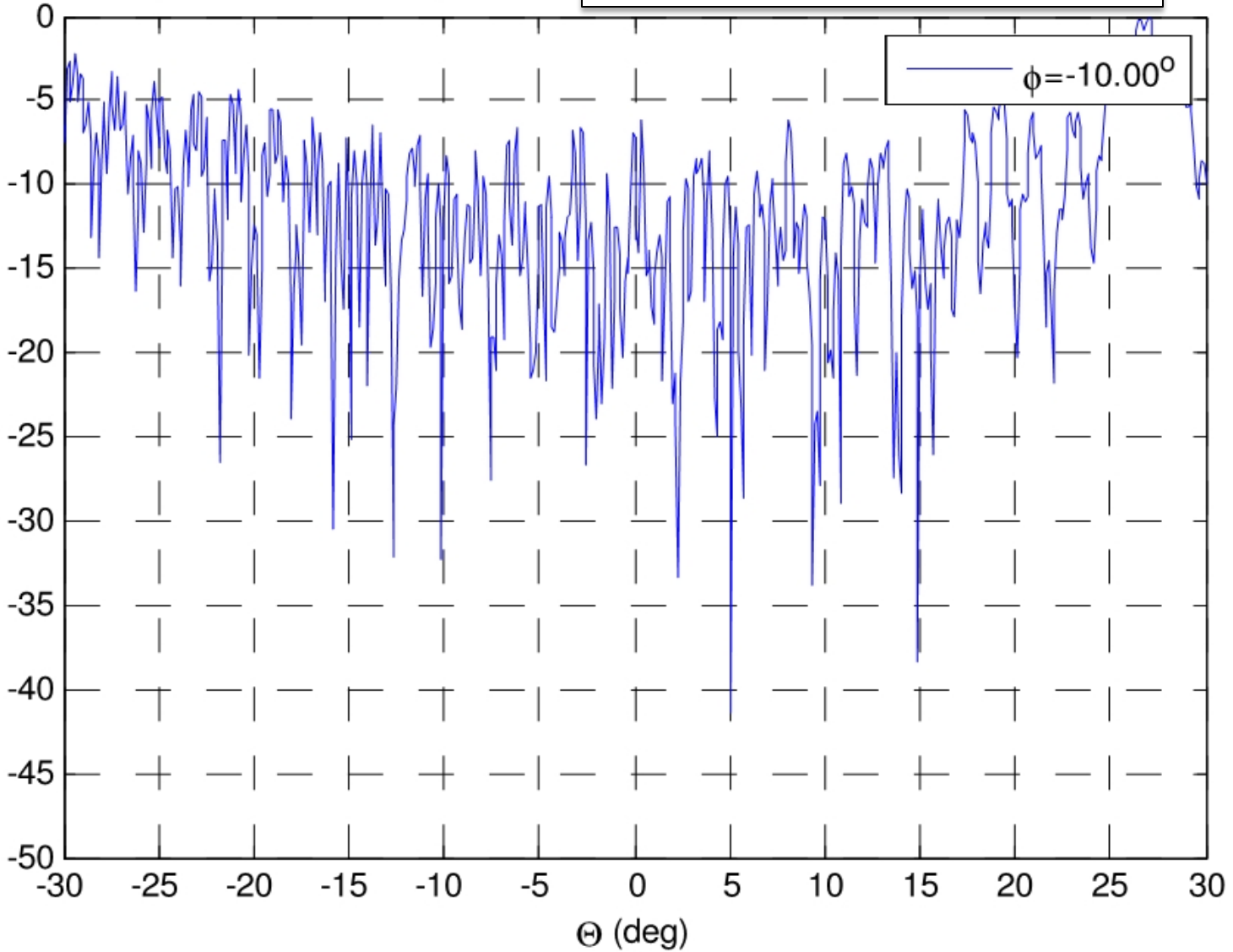
Off-axis Gain Below Peak (dBi)



Normalized pattern cuts - farfield

Input file: tx-17.5-lhcp--10.cut, Peak Off-axis Gain = -19.1 dBi

Off-axis Gain Below Peak (dBi)

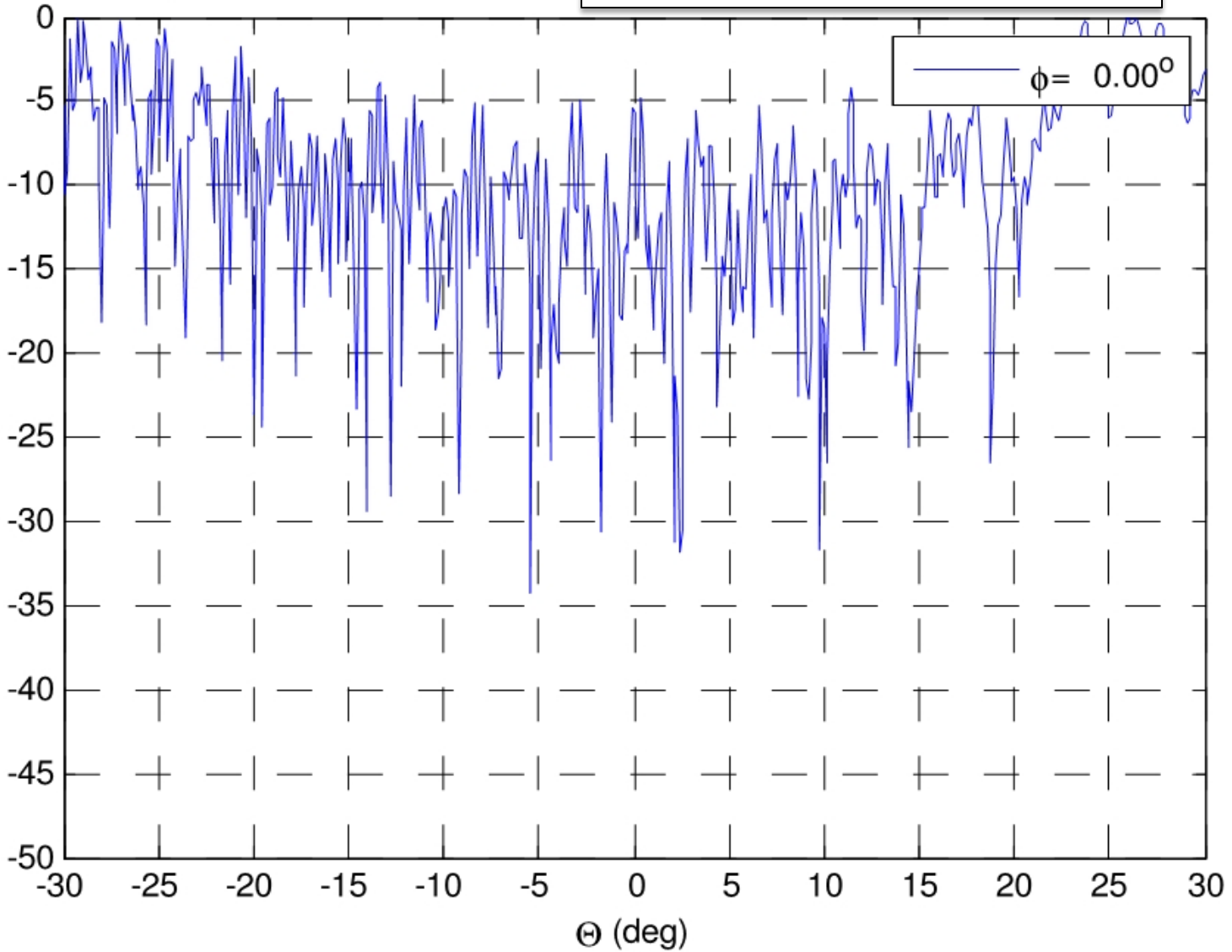


Normalized pattern cuts - farfield

Input file: tx-17.5-lhcp-0.cut, f

Peak Off-axis Gain = -20.4 dBi

Off-axis Gain Below Peak (dBi)

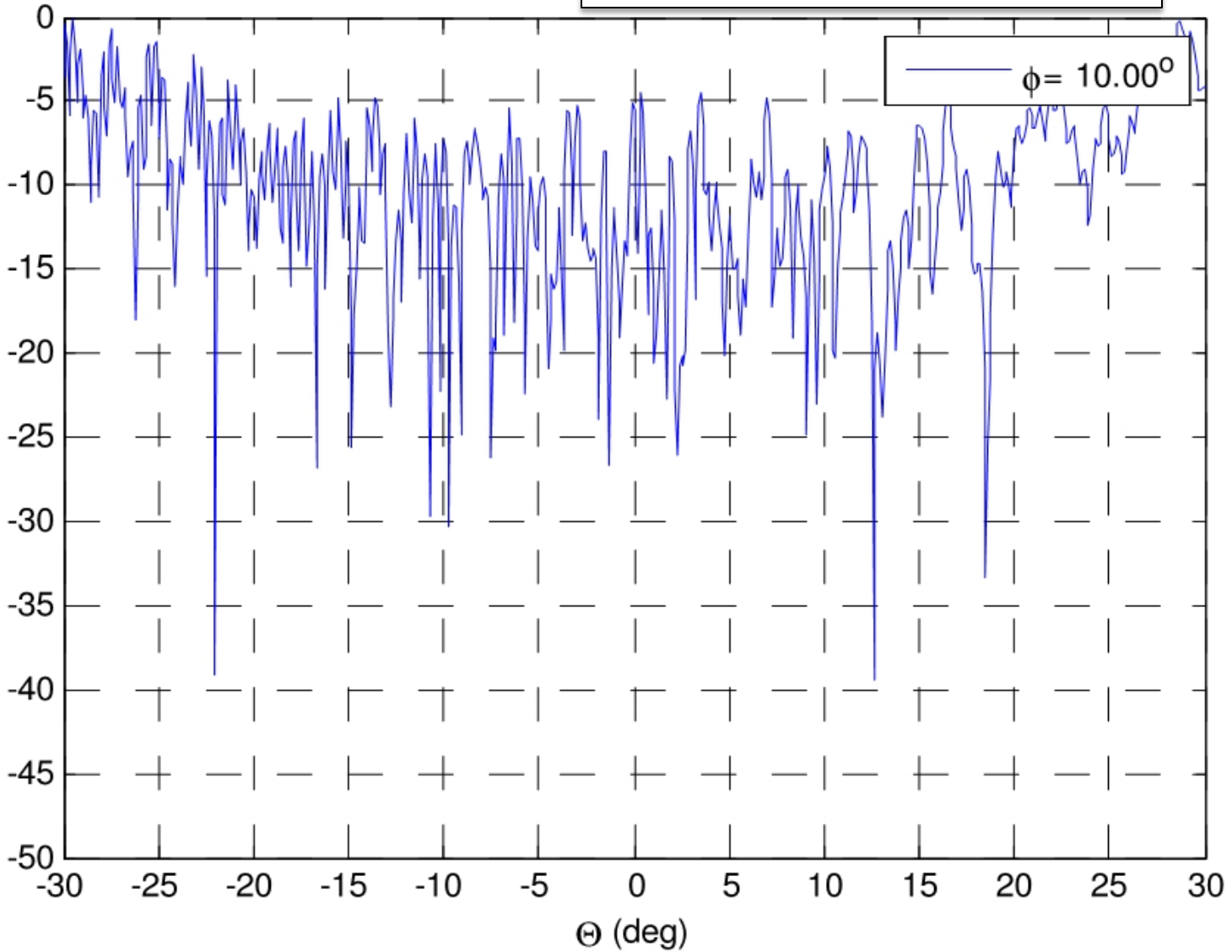


Normalized pattern cuts - farfield

Input file: tx-17.5-lhcp-10.cut,

Peak Off-axis Gain = -20.7 dBi

Off-axis Gain Below Peak (dBi)

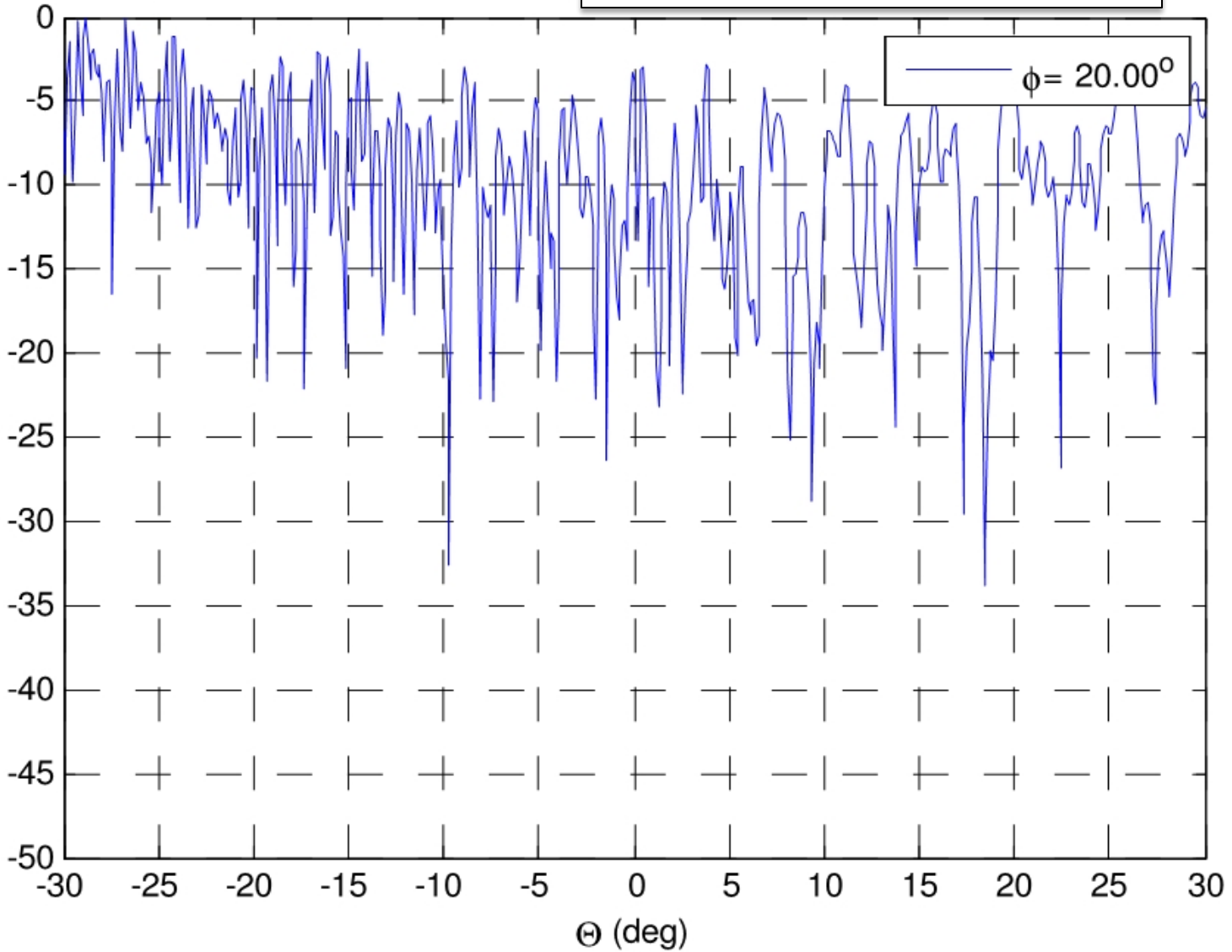


Normalized pattern cuts - farfield

Input file: tx-17.5-lhcp-20.cut,

Peak Off-axis Gain = -21.7 dBi

Off-axis Gain Below Peak (dBi)

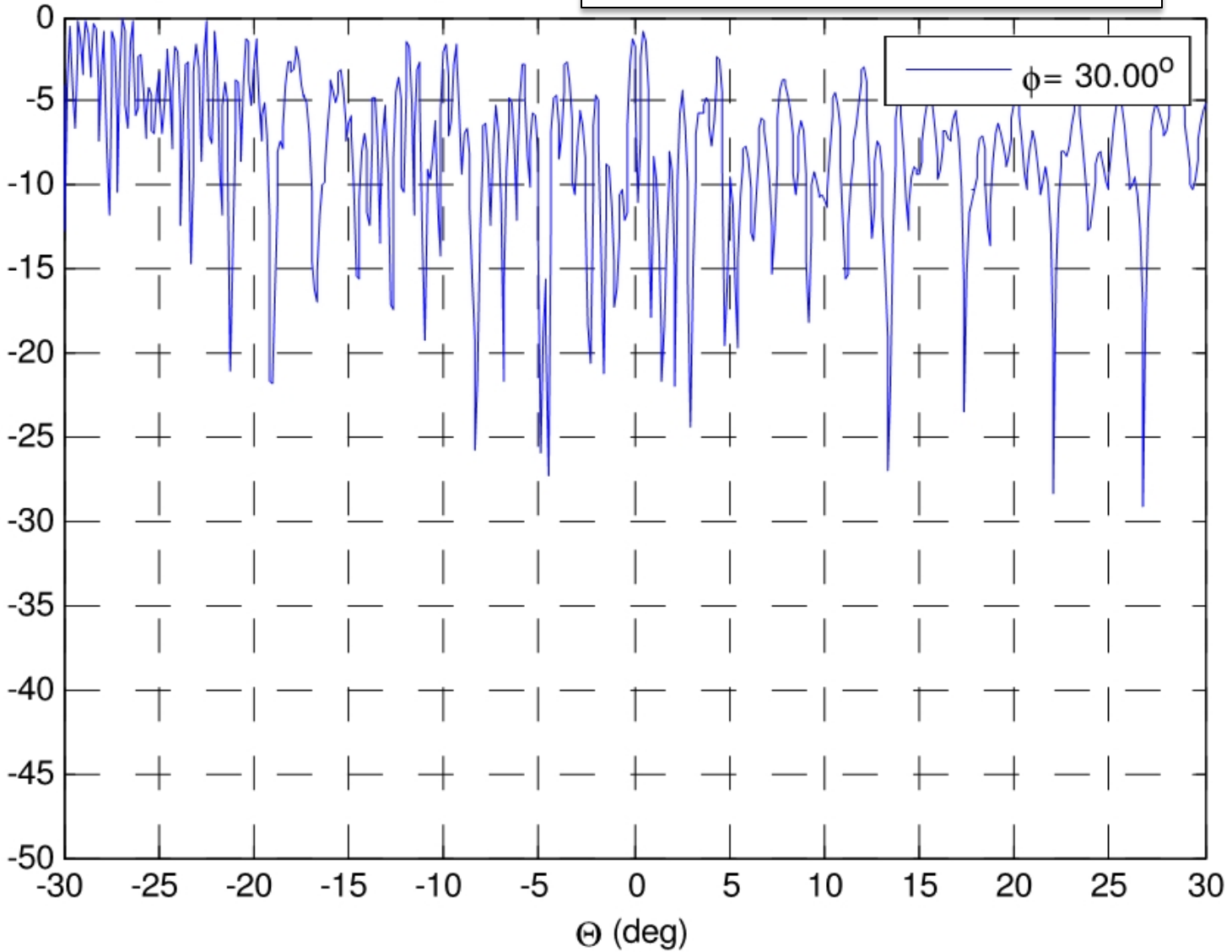


Normalized pattern cuts - farfield

Input file: tx-17.5-lhcp-30.cut,

Peak Off-axis Gain = -23.7 dBi

Off-axis Gain Below Peak (dBi)

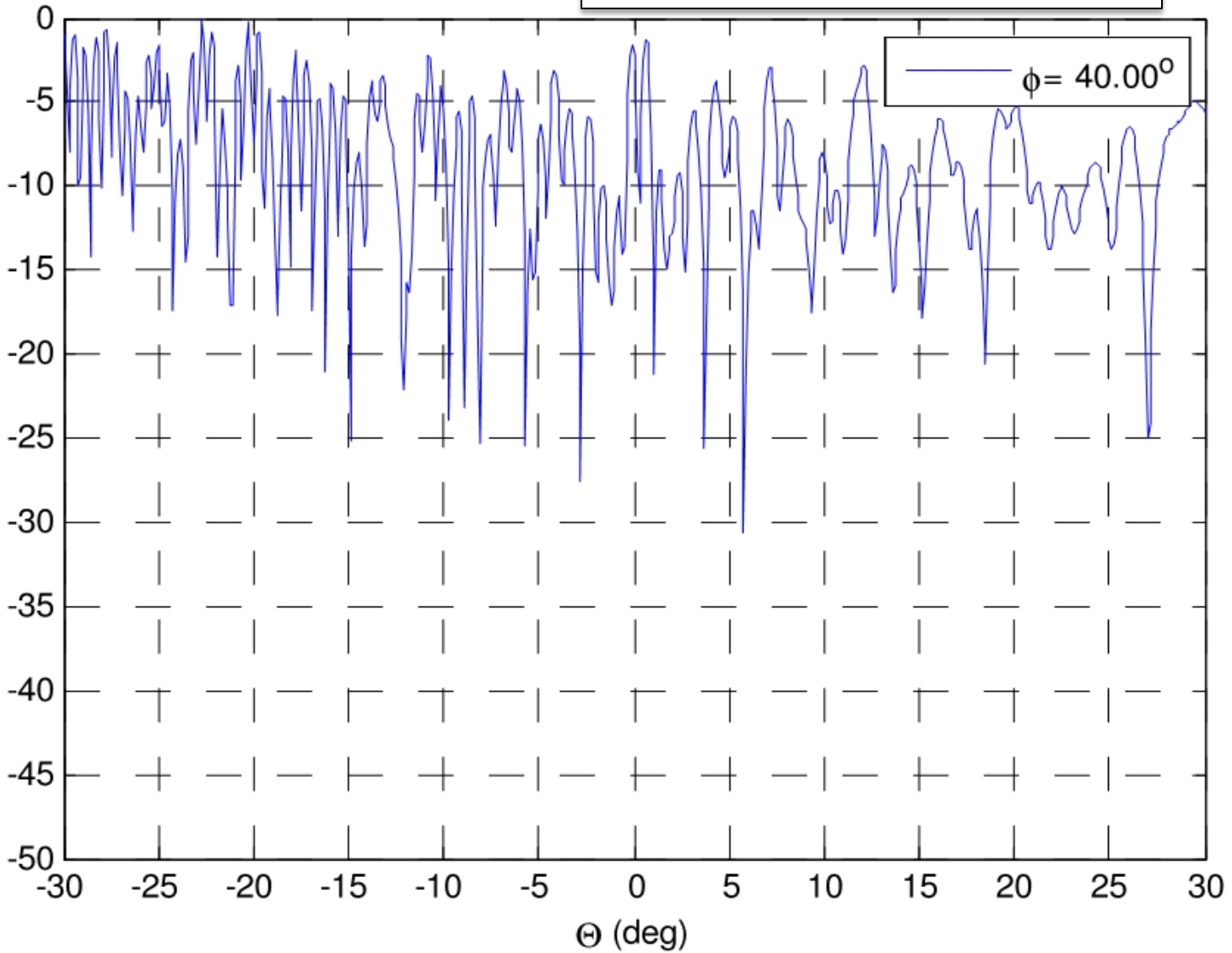


Normalized pattern cuts - farfield

Input file: tx-17.5-lhcp-40.cut,

Peak Off-axis Gain = -23.4 dBi

Off-axis Gain Below Peak (dBi)

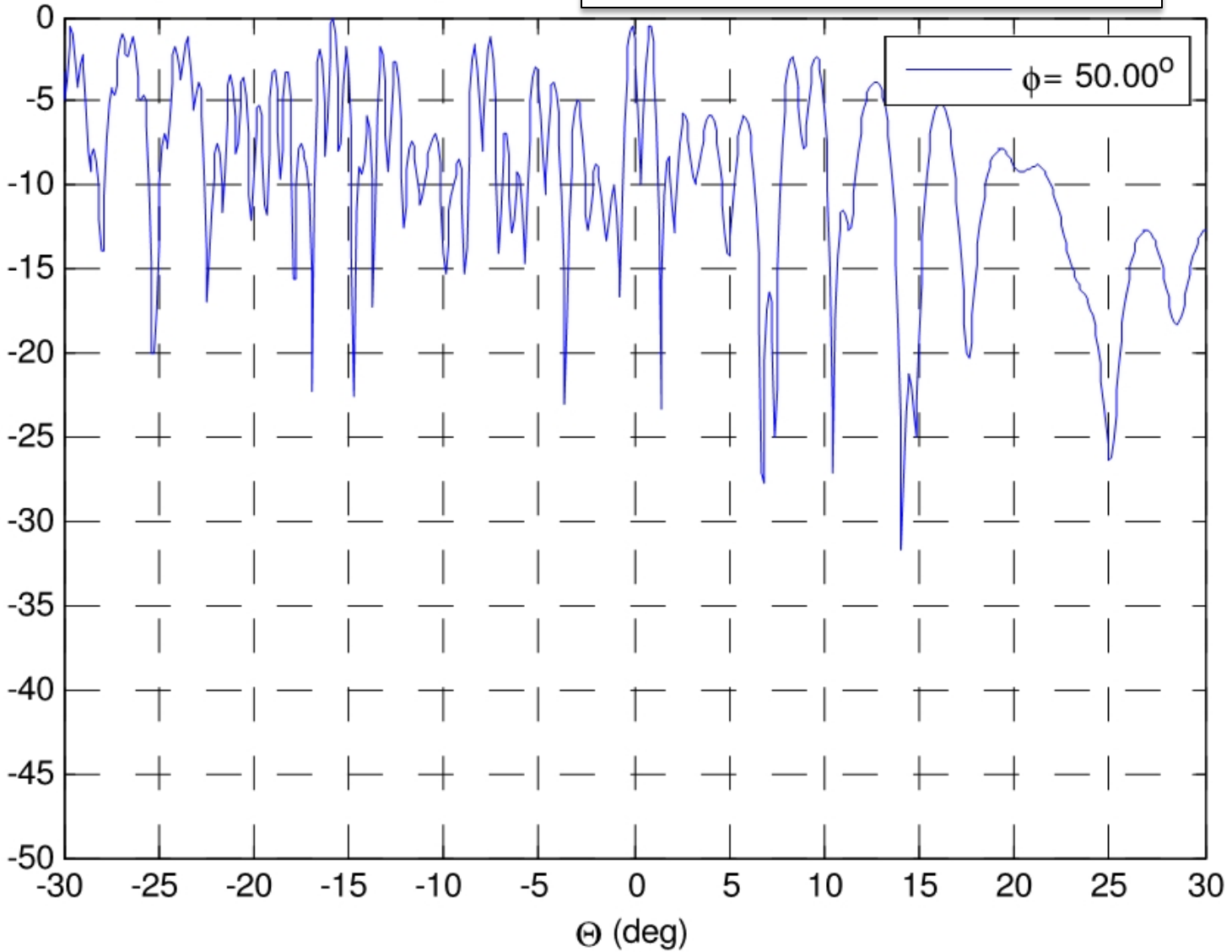


Normalized pattern cuts - farfield

Input file: tx-17.5-lhcp-50.cut,

Peak Off-axis Gain = -24.3 dBi

Off-axis Gain Below Peak (dBi)

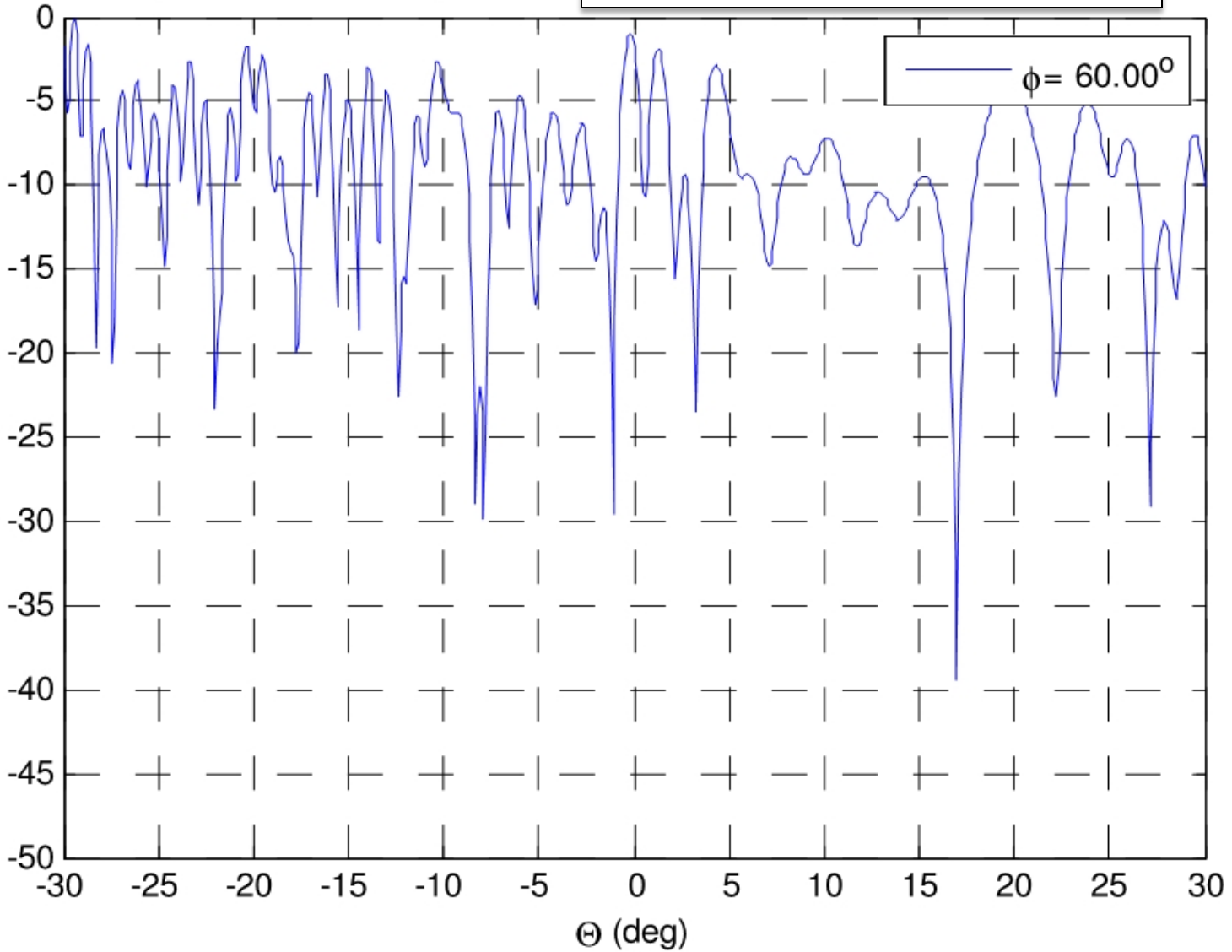


Normalized pattern cuts - farfield

Input file: tx-17.5-lhcp-60.cut,

Peak Off-axis Gain = -23.8 dBi

Off-axis Gain Below Peak (dBi)



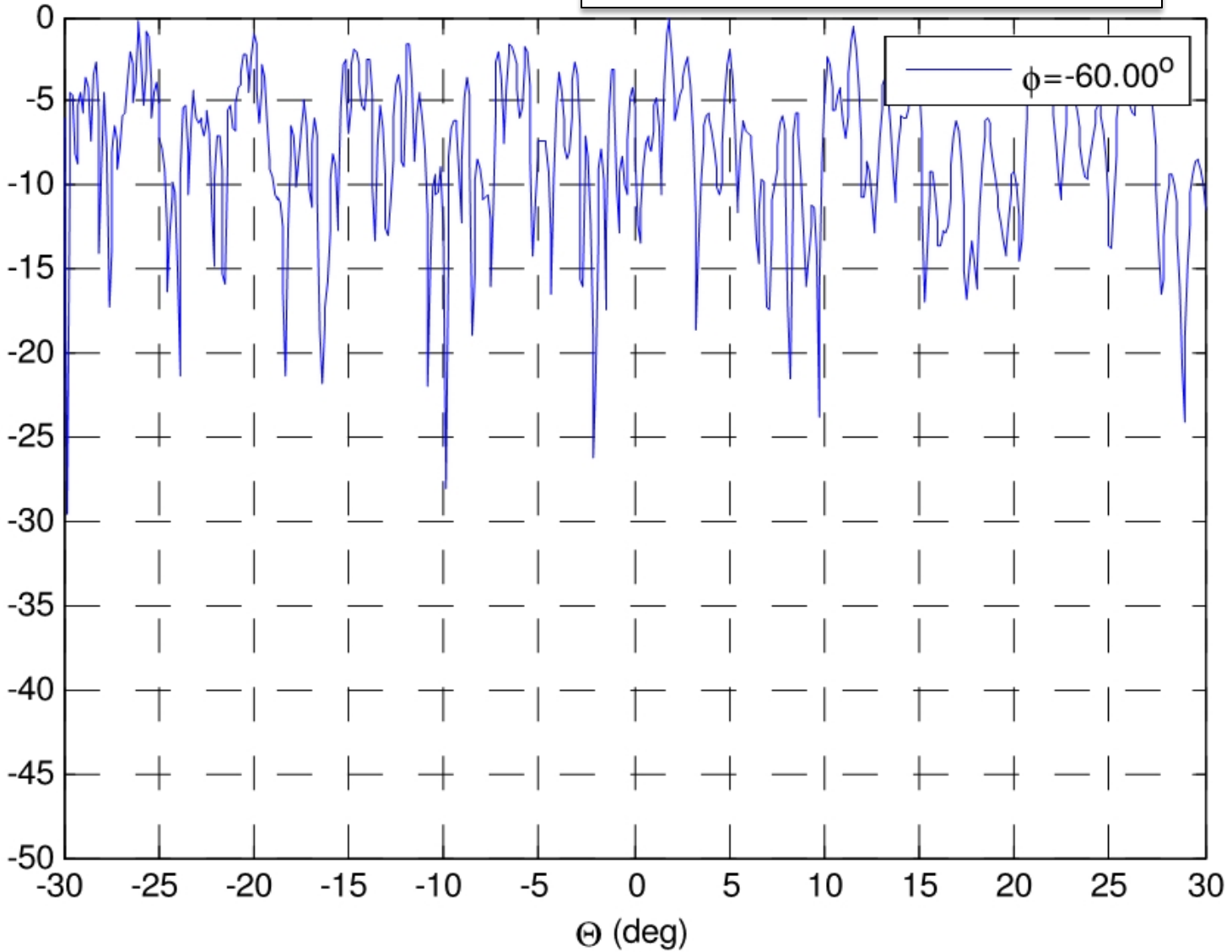
RHCP = 17.695 GHz

Normalized pattern cuts - farfield

Input file: tx-17.7-rhcp--60.cut,

Peak Off-axis Gain = -25.1 dBi

Off-axis Gain Below Peak (dBi)

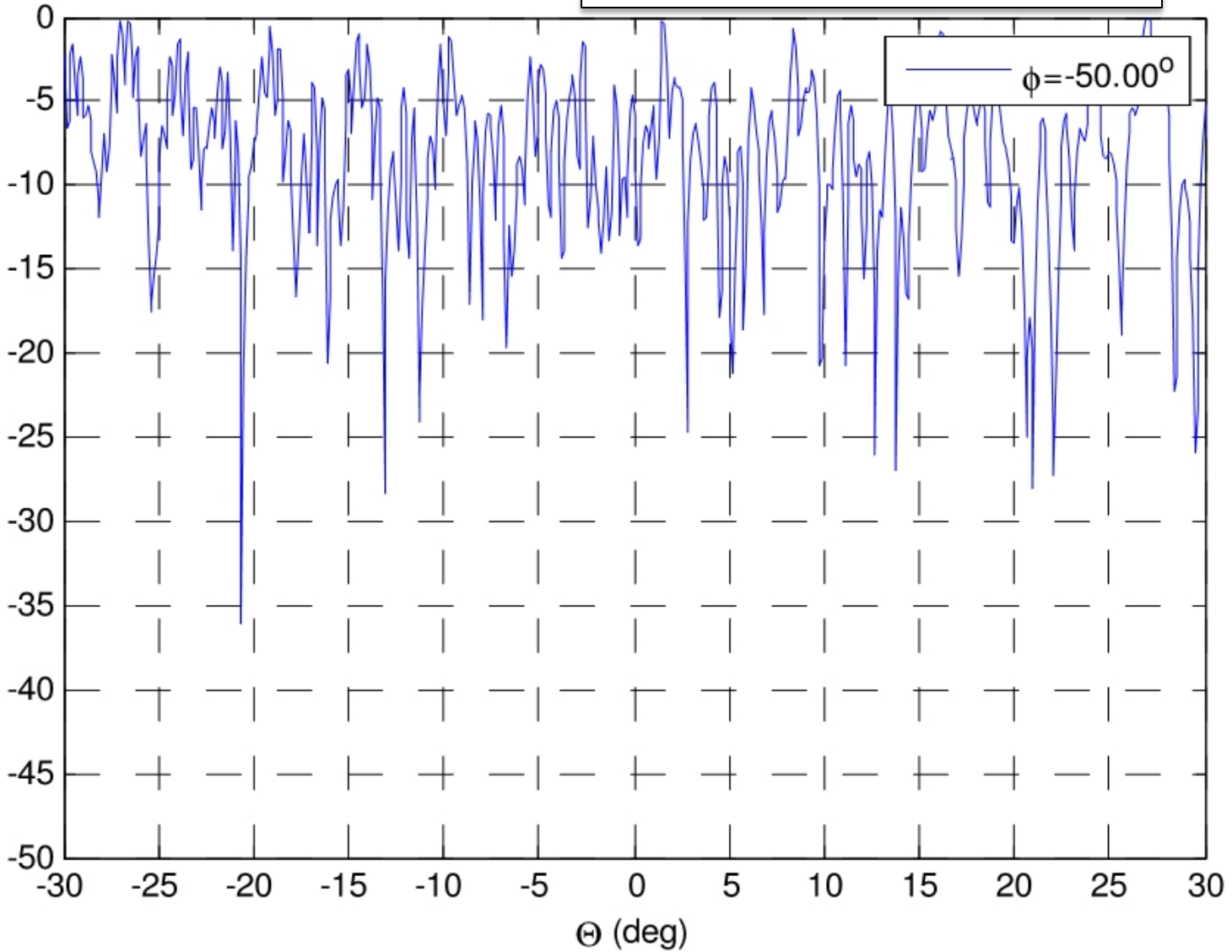


Normalized pattern cuts - farfield

Input file: tx-17.7-rhcp--50.cut,

Peak Off-axis Gain = -24.7 dBi

Off-axis Gain Below Peak (dBi)

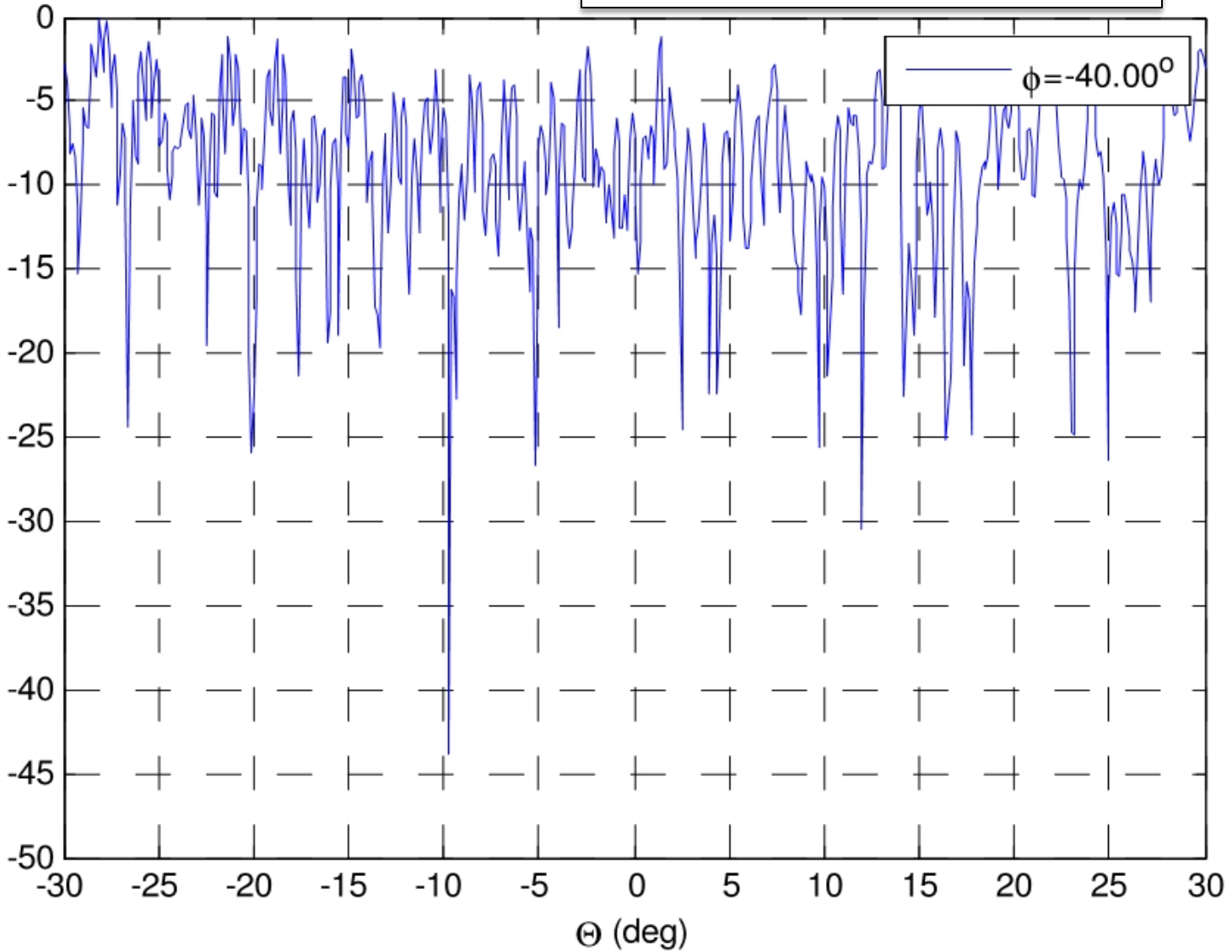


Normalized pattern cuts - farfield

Input file: tx-17.7-rhcp--40.cut,

Peak Off-axis Gain = -23.5 dBi

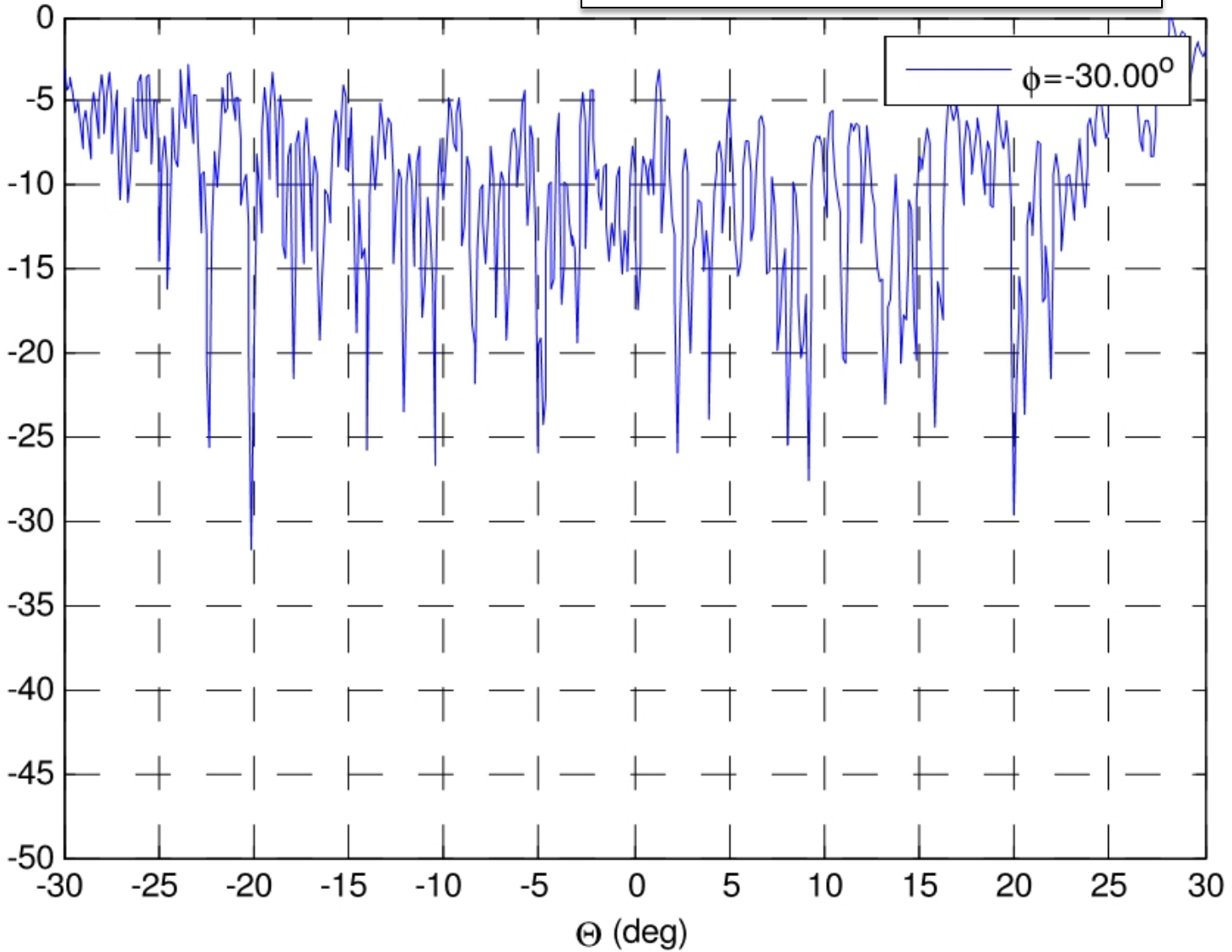
Off-axis Gain Below Peak (dBi)



Normalized pattern cuts - farfield

Input file: tx-17.7-rhcp--30.cut, Peak Off-axis Gain = -21.5 dBi

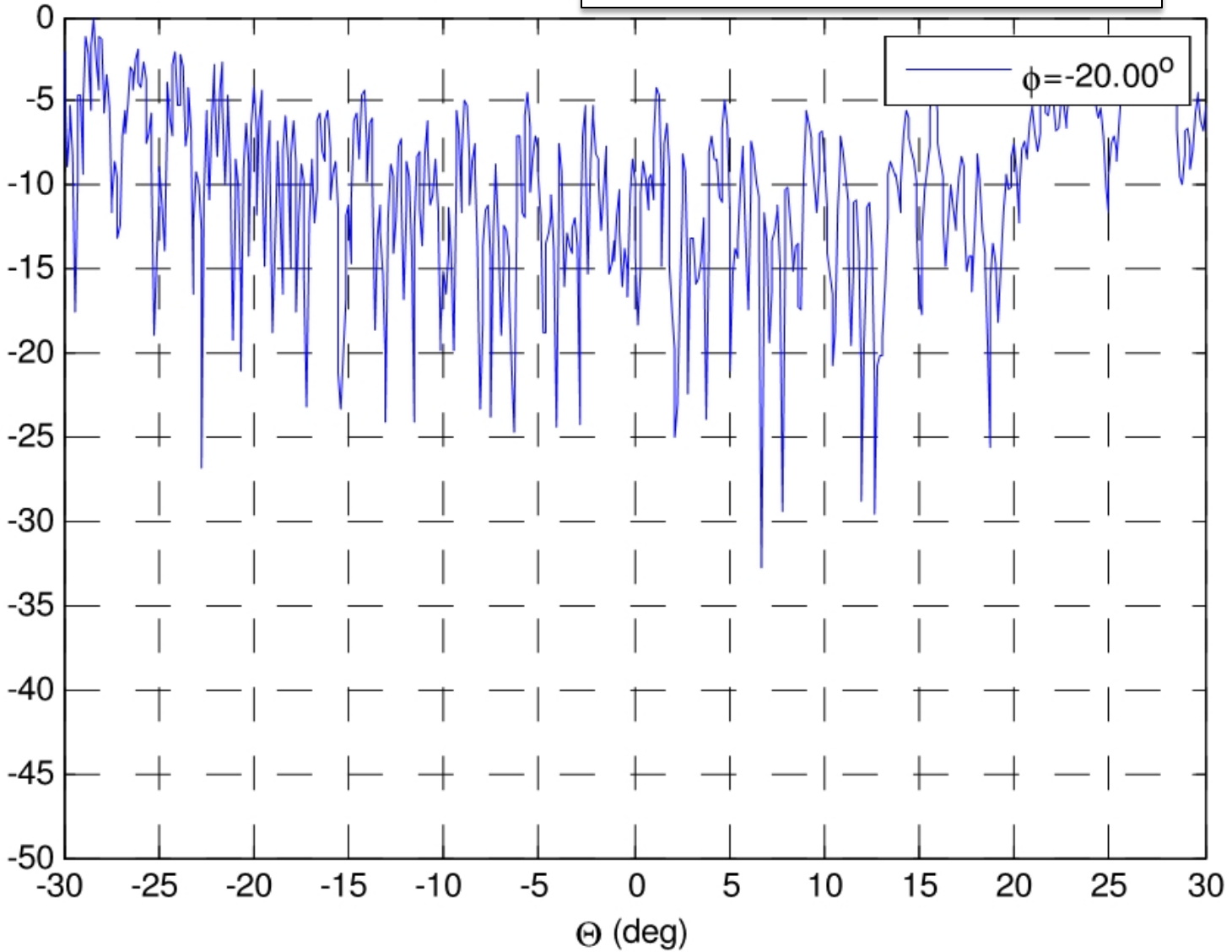
Off-axis Gain Below Peak (dBi)



Normalized pattern cuts - farfield

Input file: tx-17.7-rhcp--20.cut, Peak Off-axis Gain = -21.7 dBi

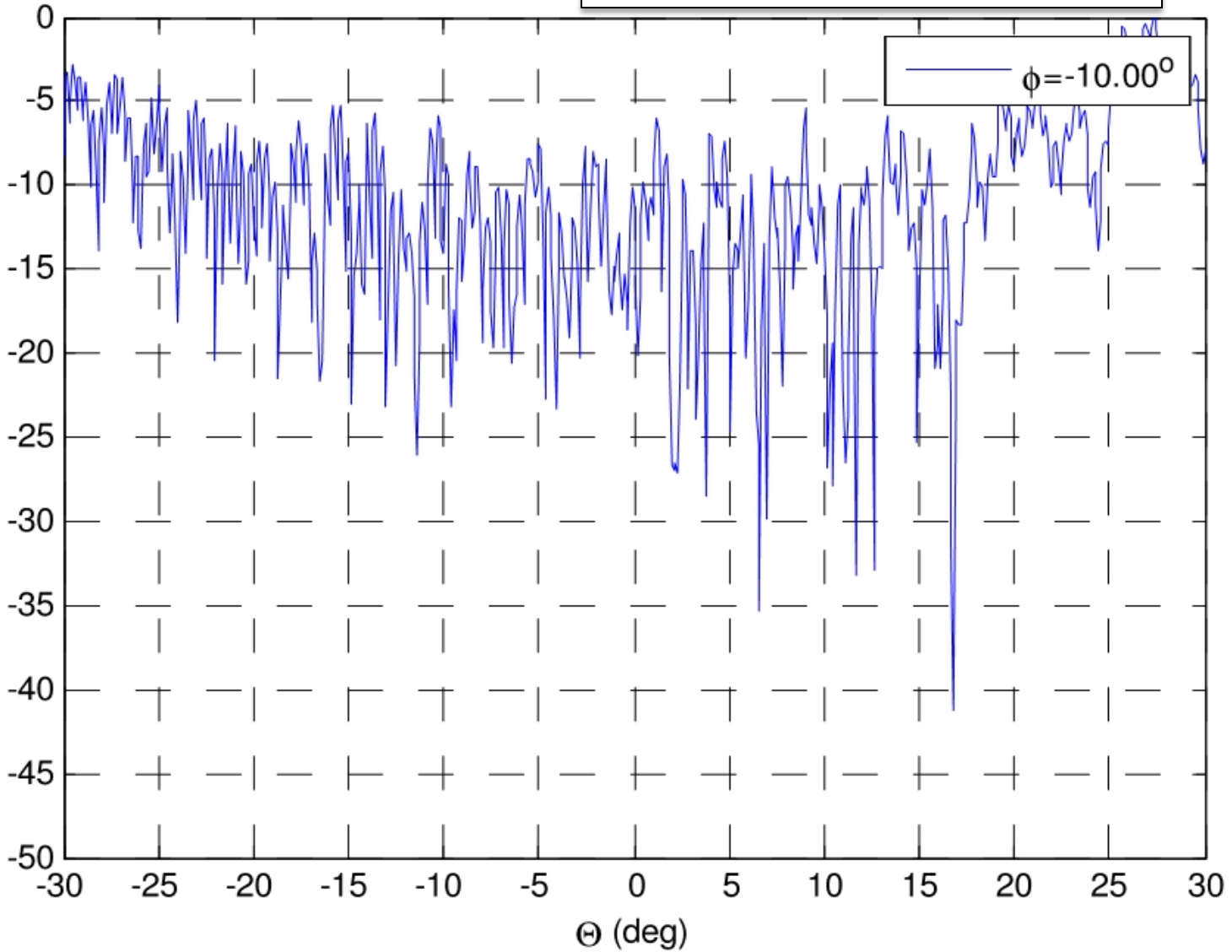
Off-axis Gain Below Peak (dBi)



Normalized pattern cuts - farfield

Input file: tx-17.7-rhcp--10.cut, Peak Off-axis Gain = -19.0 dBi

Off-axis Gain Below Peak (dBi)

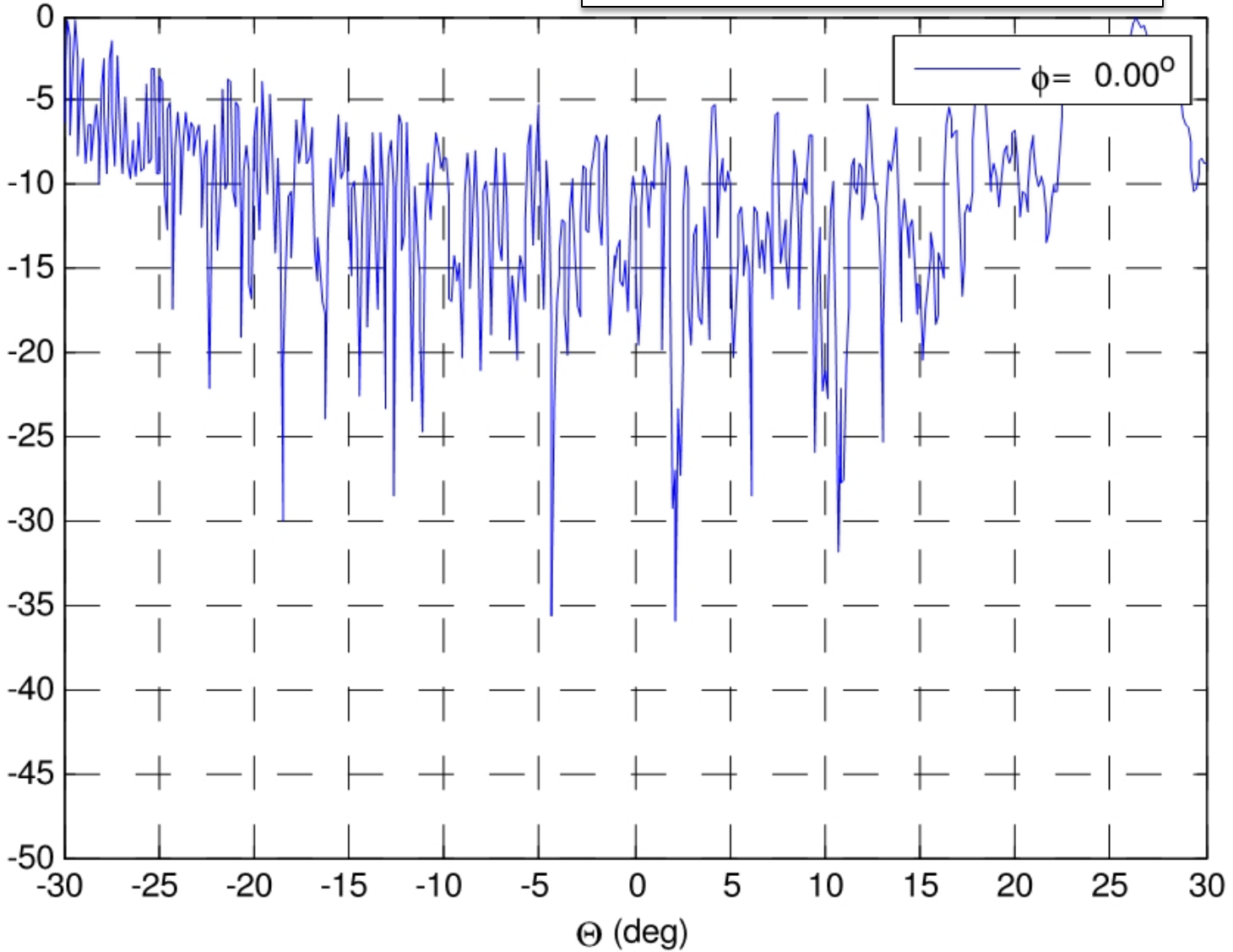


Normalized pattern cuts - farfield

Input file: tx-17.7-rhcp-0.cut,

Peak Off-axis Gain = -19.7 dBi

Off-axis Gain Below Peak (dBi)

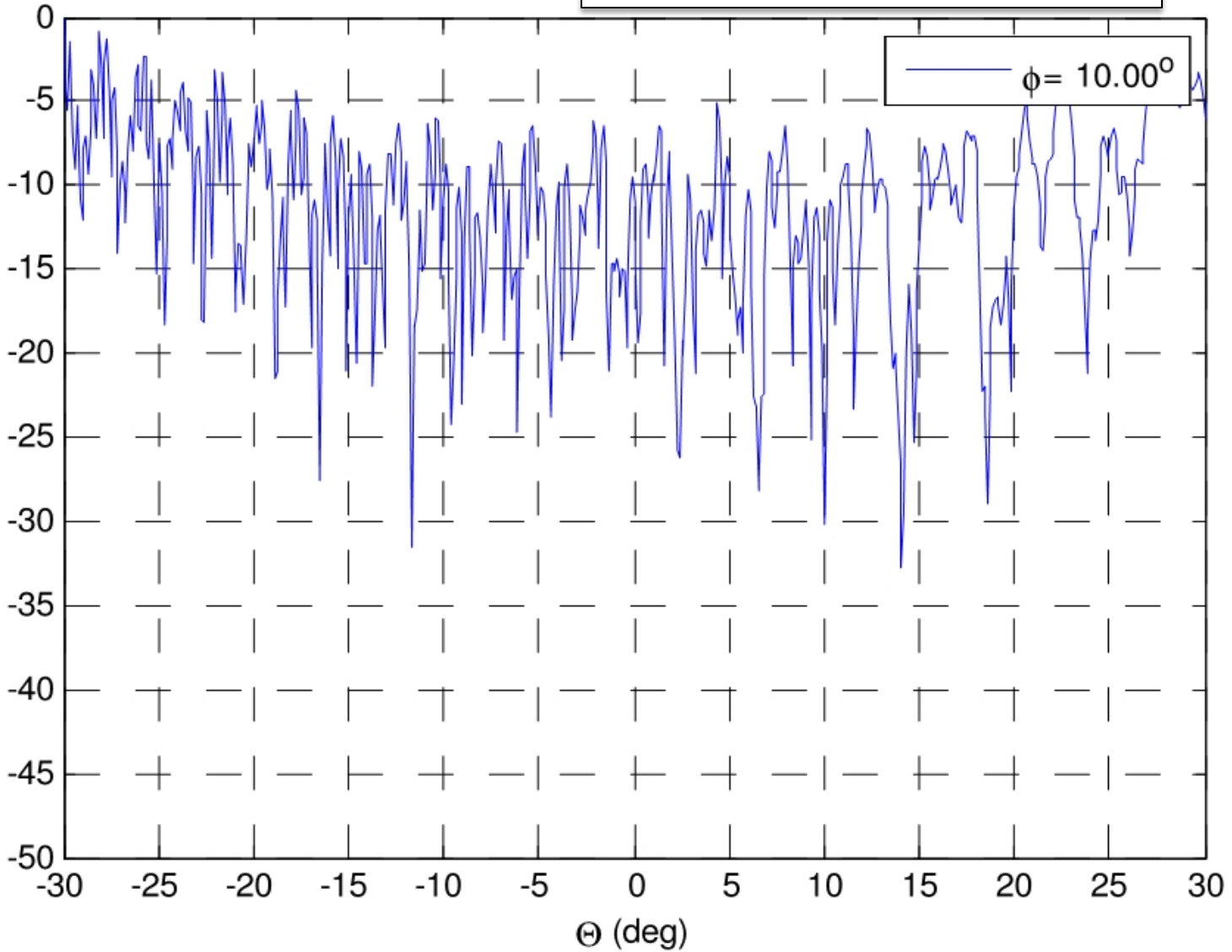


Normalized pattern cuts - farfield

Input file: tx-17.7-rhcp-10.cut,

Peak Off-axis Gain = -19.8 dBi

Off-axis Gain Below Peak (dBi)

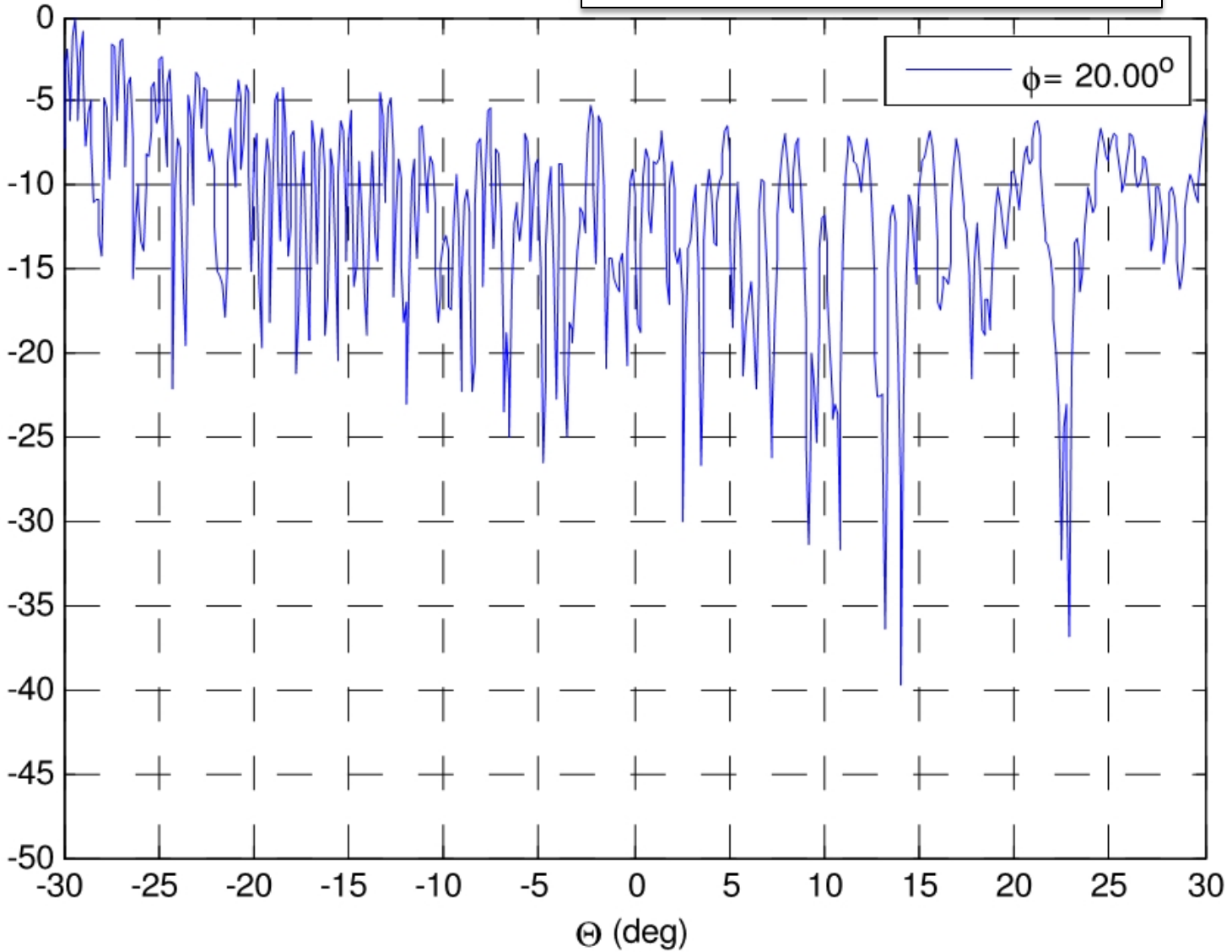


Normalized pattern cuts - farfield

Input file: tx-17.7-rhcp-20.cut,

Peak Off-axis Gain = -20.0 dBi

Off-axis Gain Below Peak (dBi)

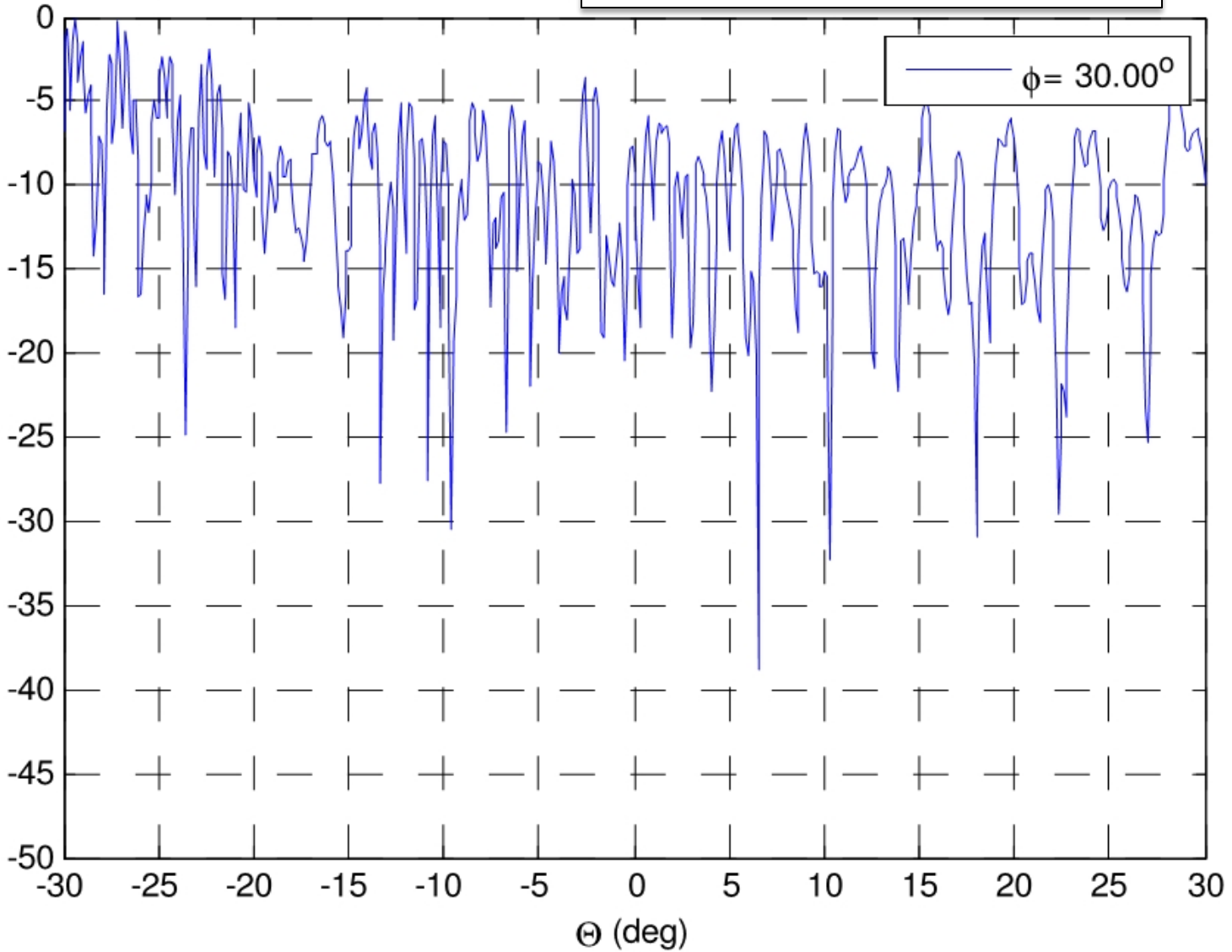


Normalized pattern cuts - farfield

Input file: tx-17.7-rhcp-30.cut,

Peak Off-axis Gain = -21.5 dBi

Off-axis Gain Below Peak (dBi)

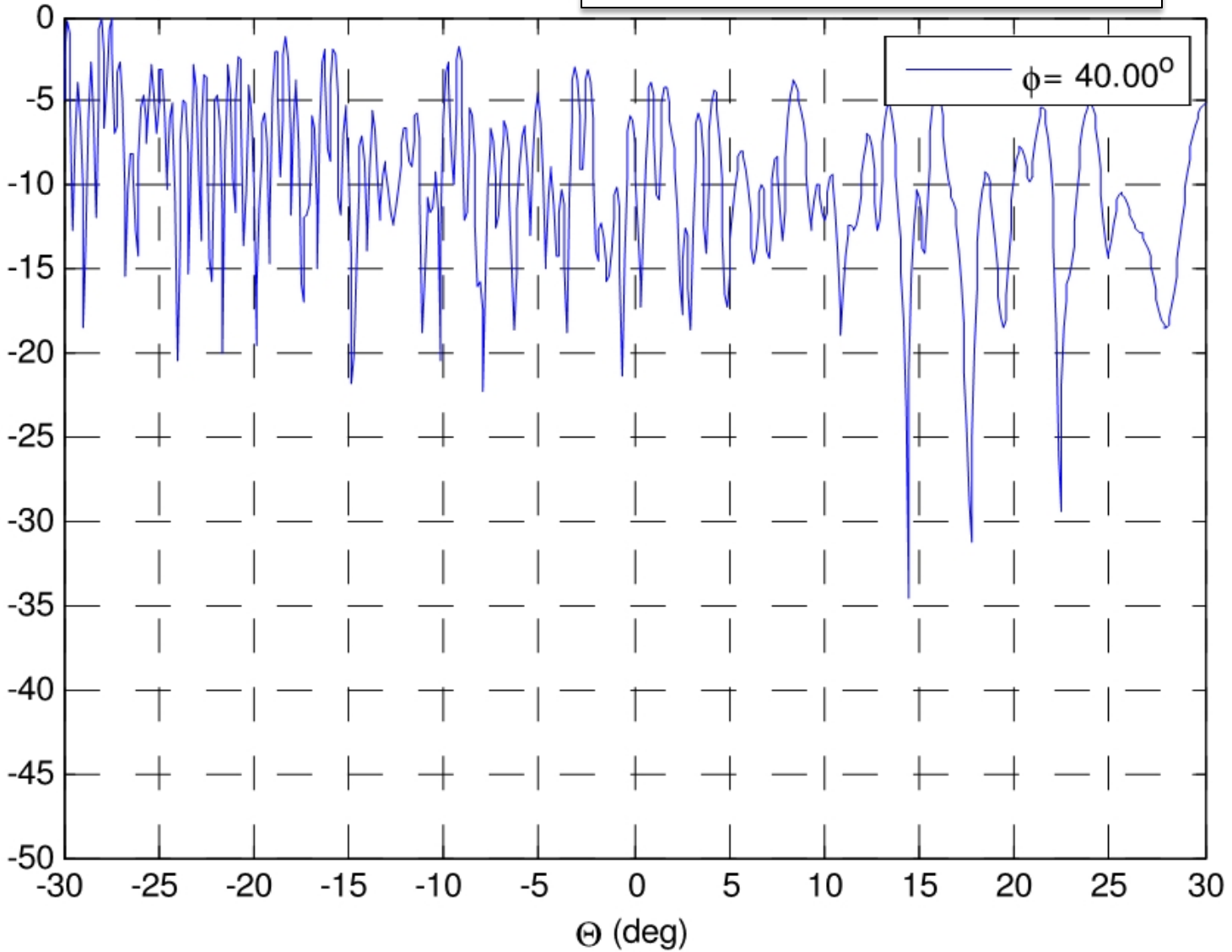


Normalized pattern cuts - farfield

Input file: tx-17.7-rhcp-40.cut,

Peak Off-axis Gain = -23.0 dBi

Off-axis Gain Below Peak (dBi)

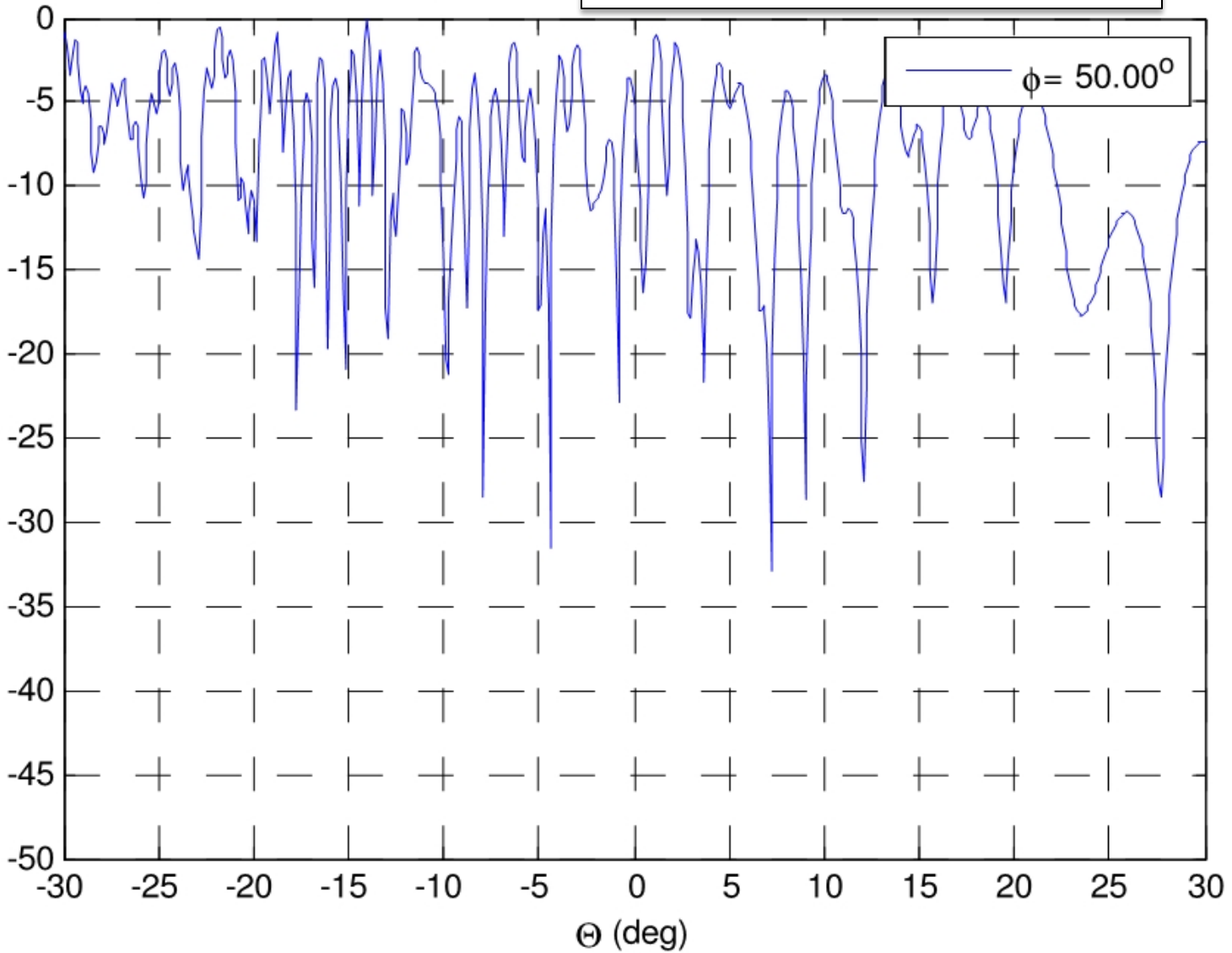


Normalized pattern cuts - farfield

Input file: tx-17.7-rhcp-50.cut,

Peak Off-axis Gain = -25.3 dBi

Off-axis Gain Below Peak (dBi)

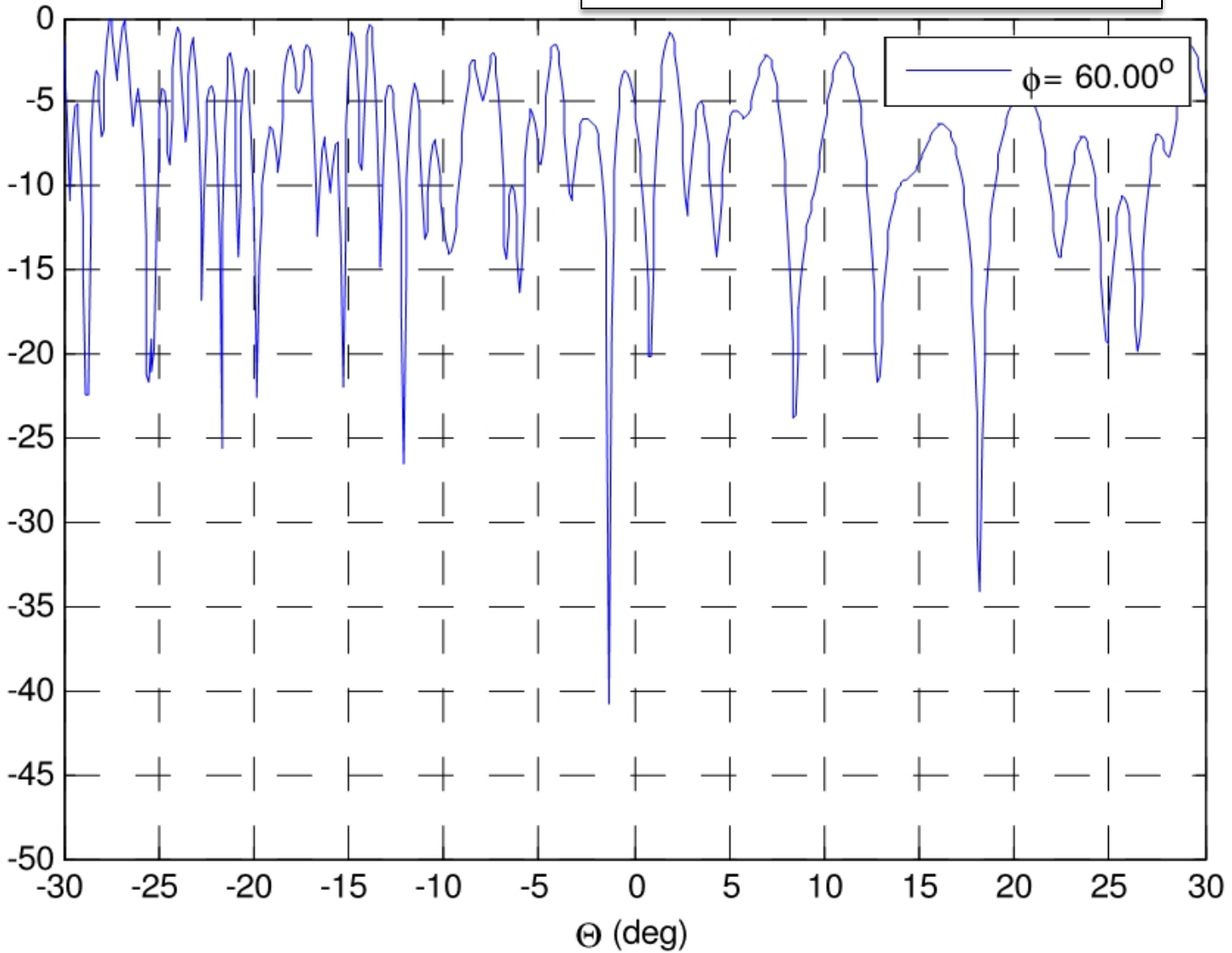


Normalized pattern cuts - farfield

Input file: tx-17.7-rhcp-60.cut,

Peak Off-axis Gain = -24.5 dBi

Off-axis Gain Below Peak (dBi)



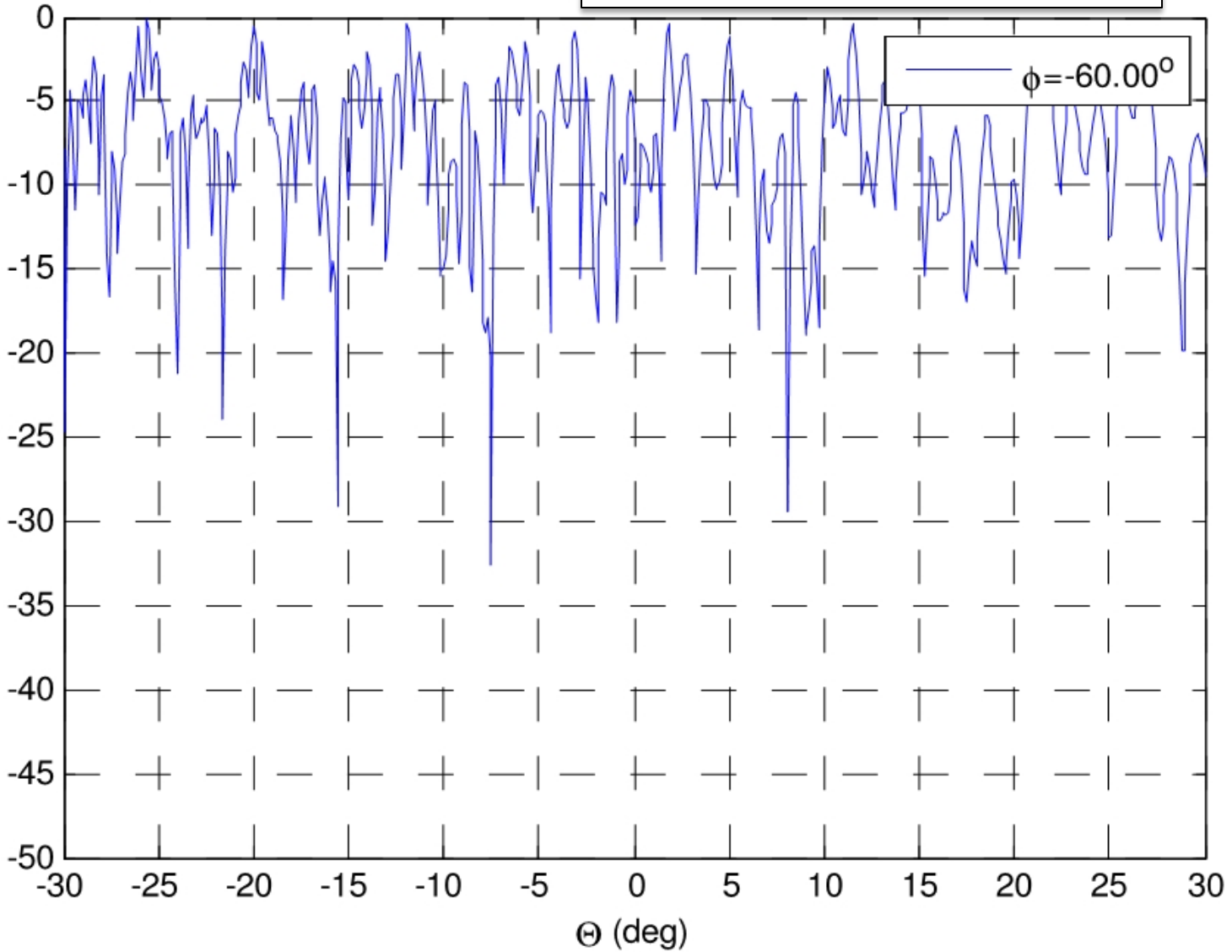
LHCP = 17.695 GHz

Normalized pattern cuts - farfield

Input file: tx-17.7-lhcp--60.cut,

Peak Off-axis Gain = -24.6 dBi

Off-axis Gain Below Peak (dBi)

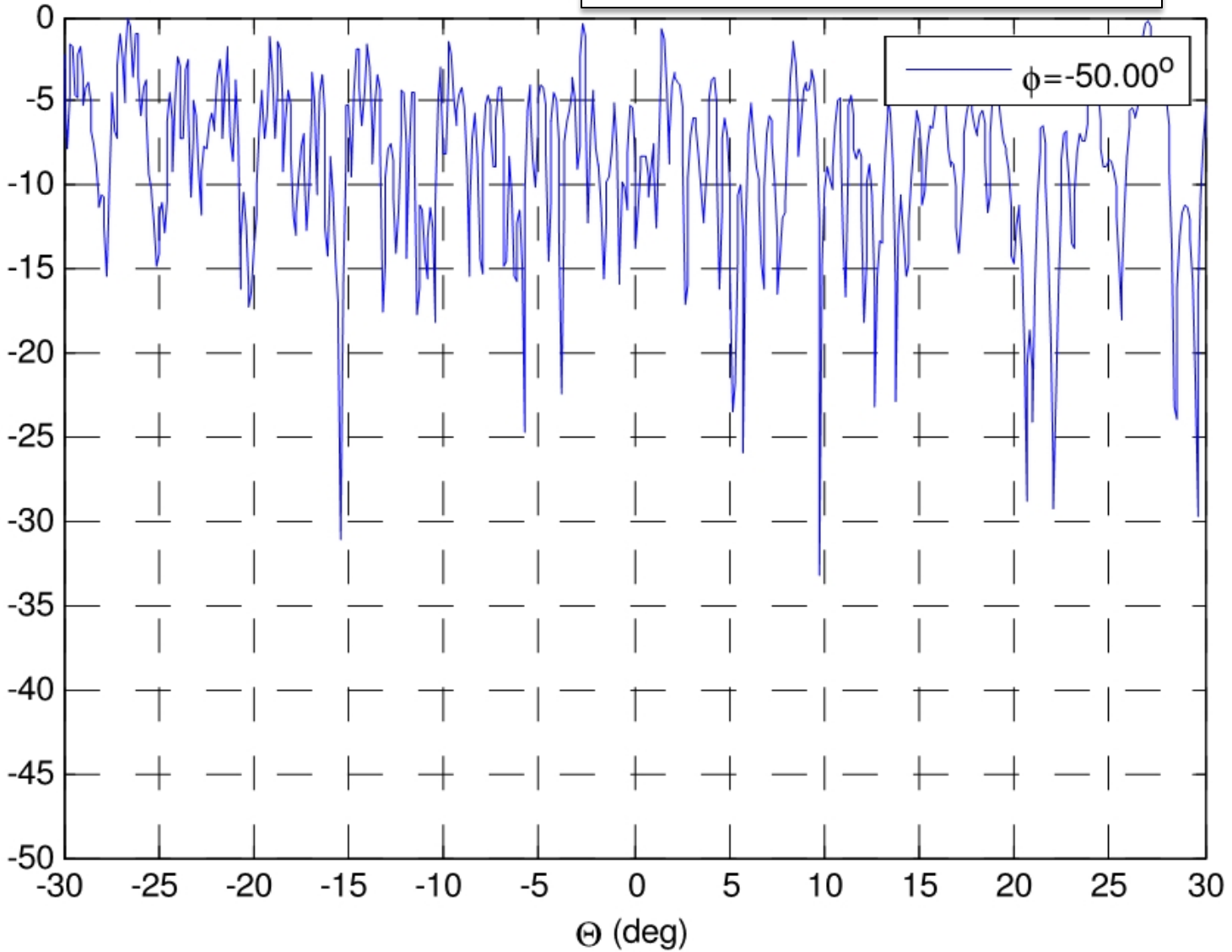


Normalized pattern cuts - farfield

Input file: tx-17.7-lhcp--50.cut,

Peak Off-axis Gain = -24.0 dBi

Off-axis Gain Below Peak (dBi)

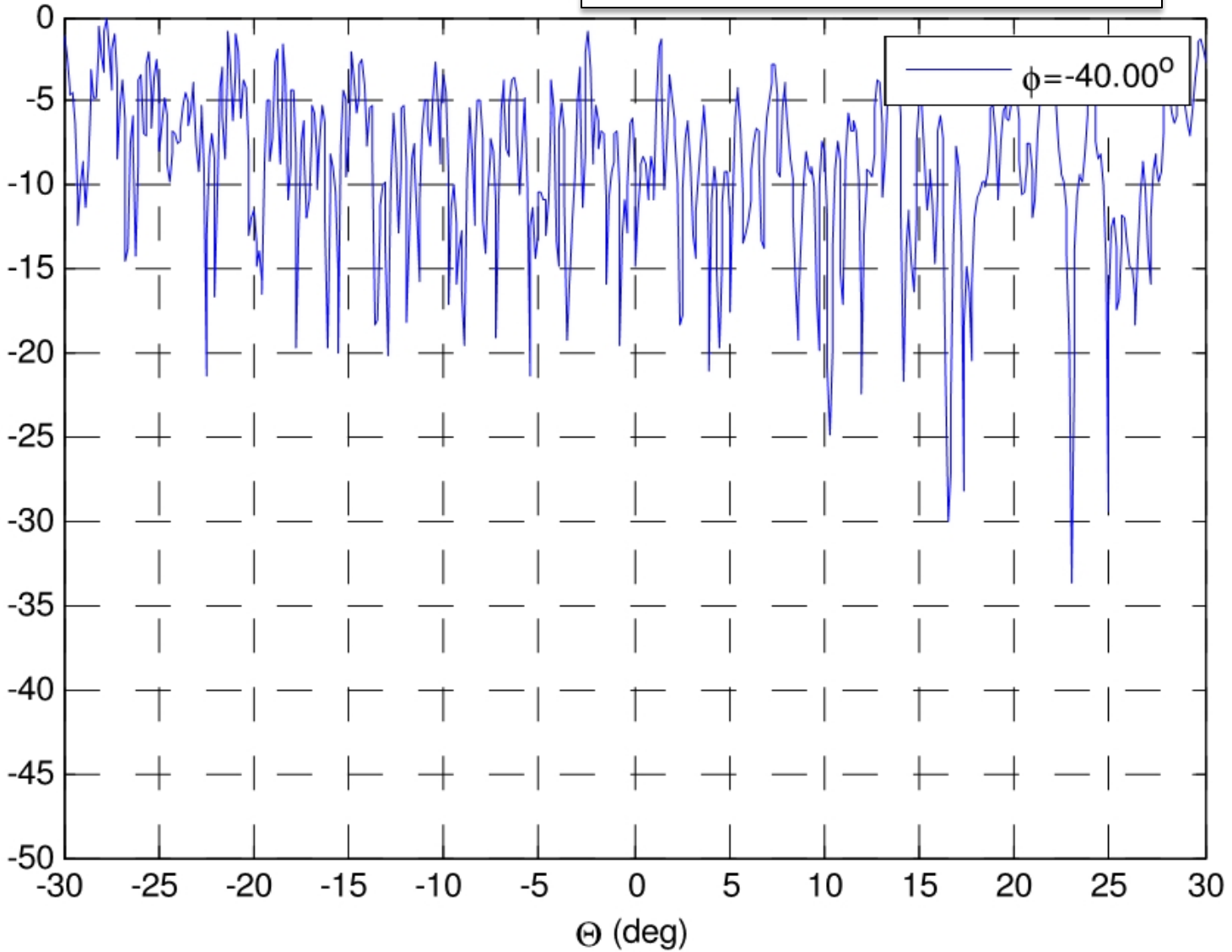


Normalized pattern cuts - farfield

Input file: tx-17.7-lhcp--40.cut,

Peak Off-axis Gain = -22.9 dBi

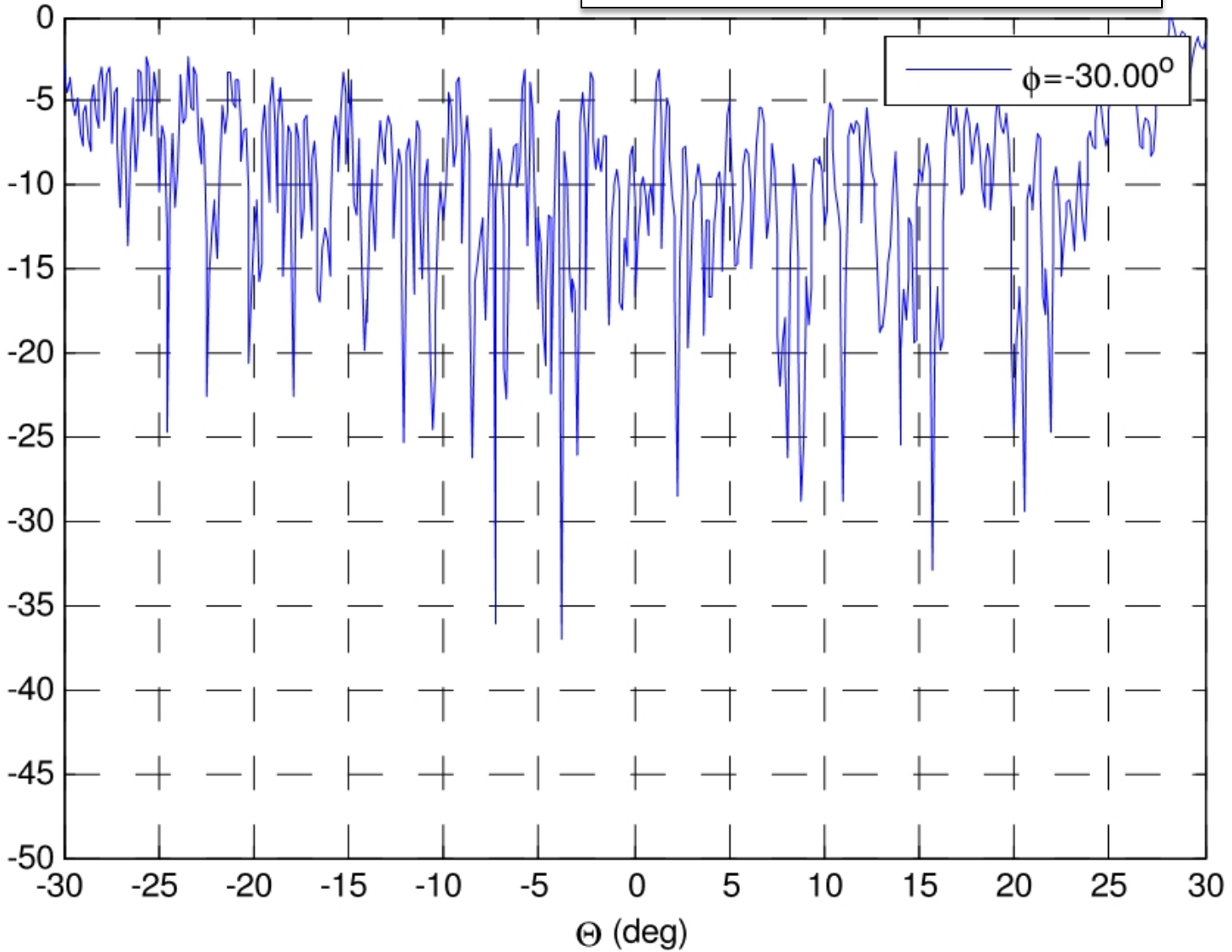
Off-axis Gain Below Peak (dBi)



Normalized pattern cuts - farfield

Input file: tx-17.7-lhcp--30.cut, Peak Off-axis Gain = -21.0 dBi

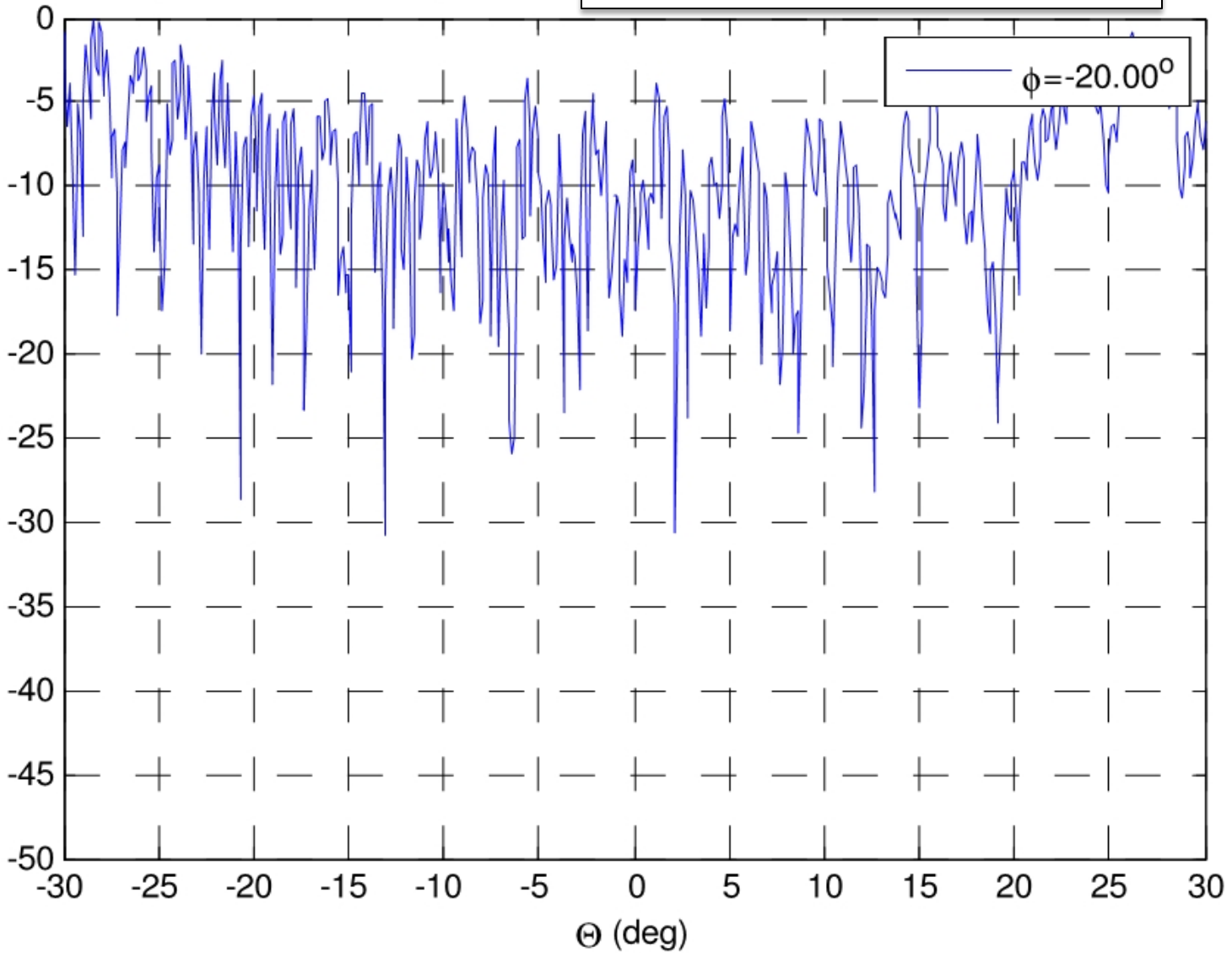
Off-axis Gain Below Peak (dBi)



Normalized pattern cuts - farfield

Input file: tx-17.7-lhcp--20.cut, Peak Off-axis Gain = -21.2 dBi

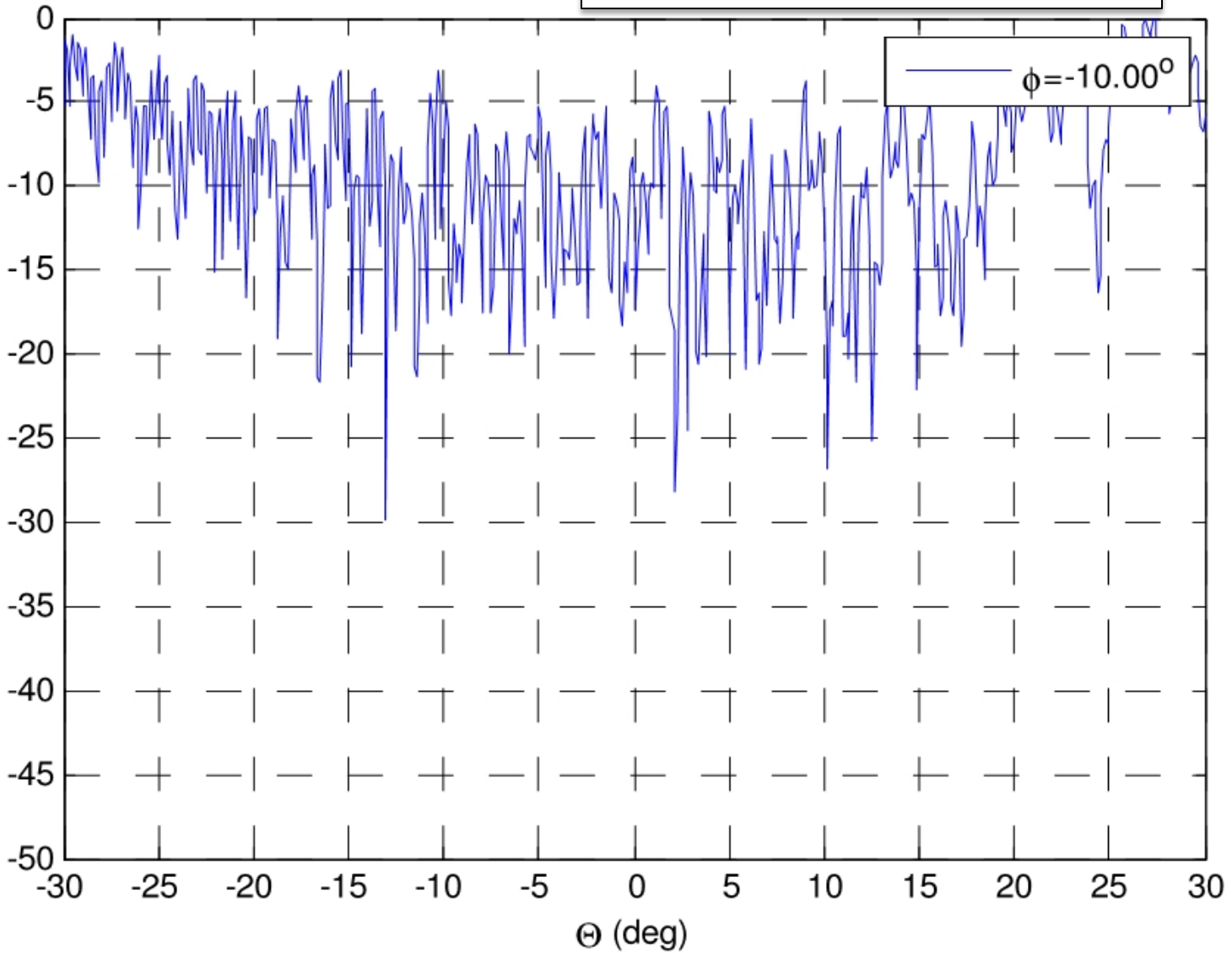
Off-axis Gain Below Peak (dBi)



Normalized pattern cuts - farfield

Input file: tx-17.7-lhcp--10.cut, Peak Off-axis Gain = -21.3 dBi

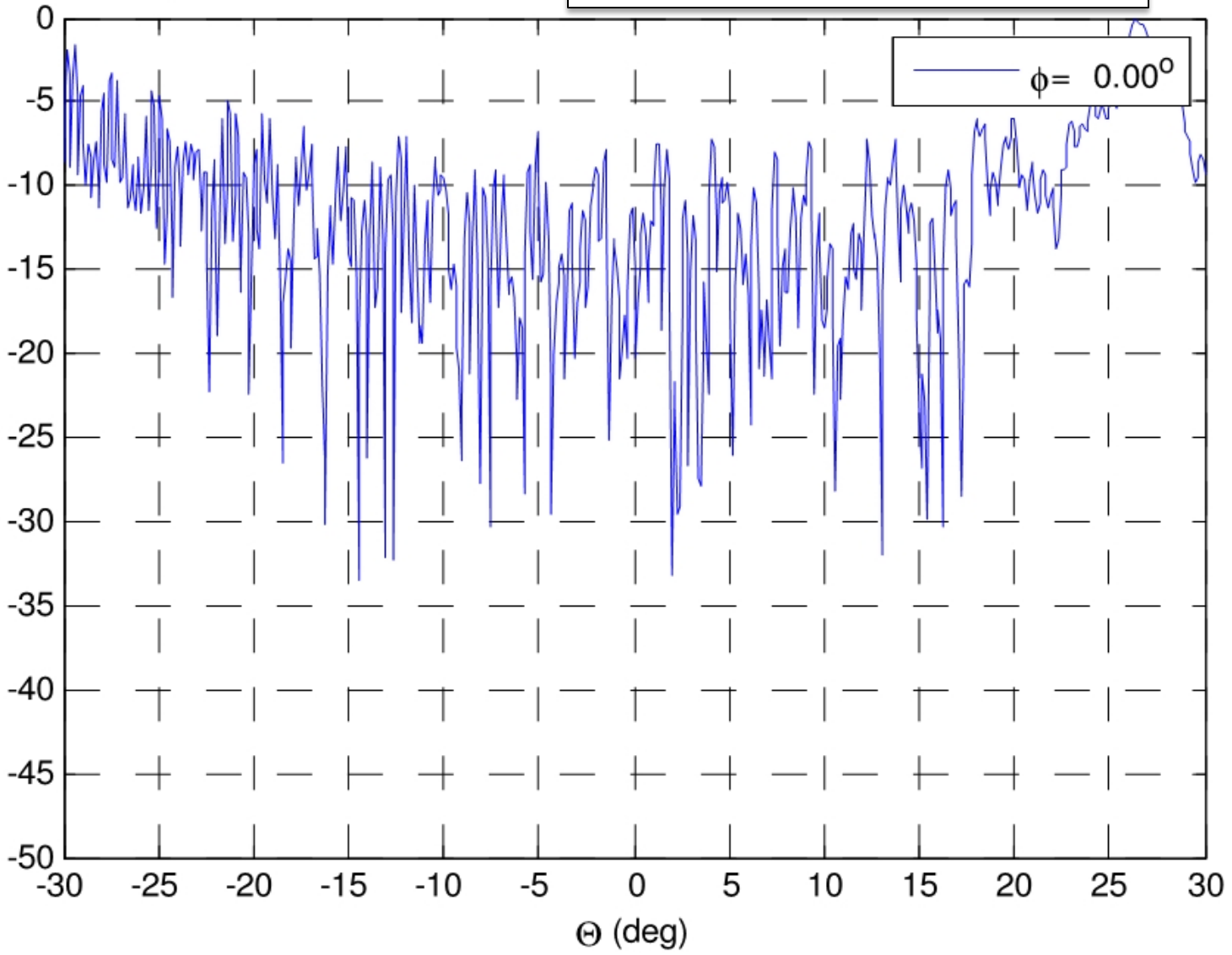
Off-axis Gain Below Peak (dBi)



Normalized pattern cuts - farfield

Input file: tx-17.7-lhcp-0.cut, Peak Off-axis Gain = -17.7 dBi

Off-axis Gain Below Peak (dBi)

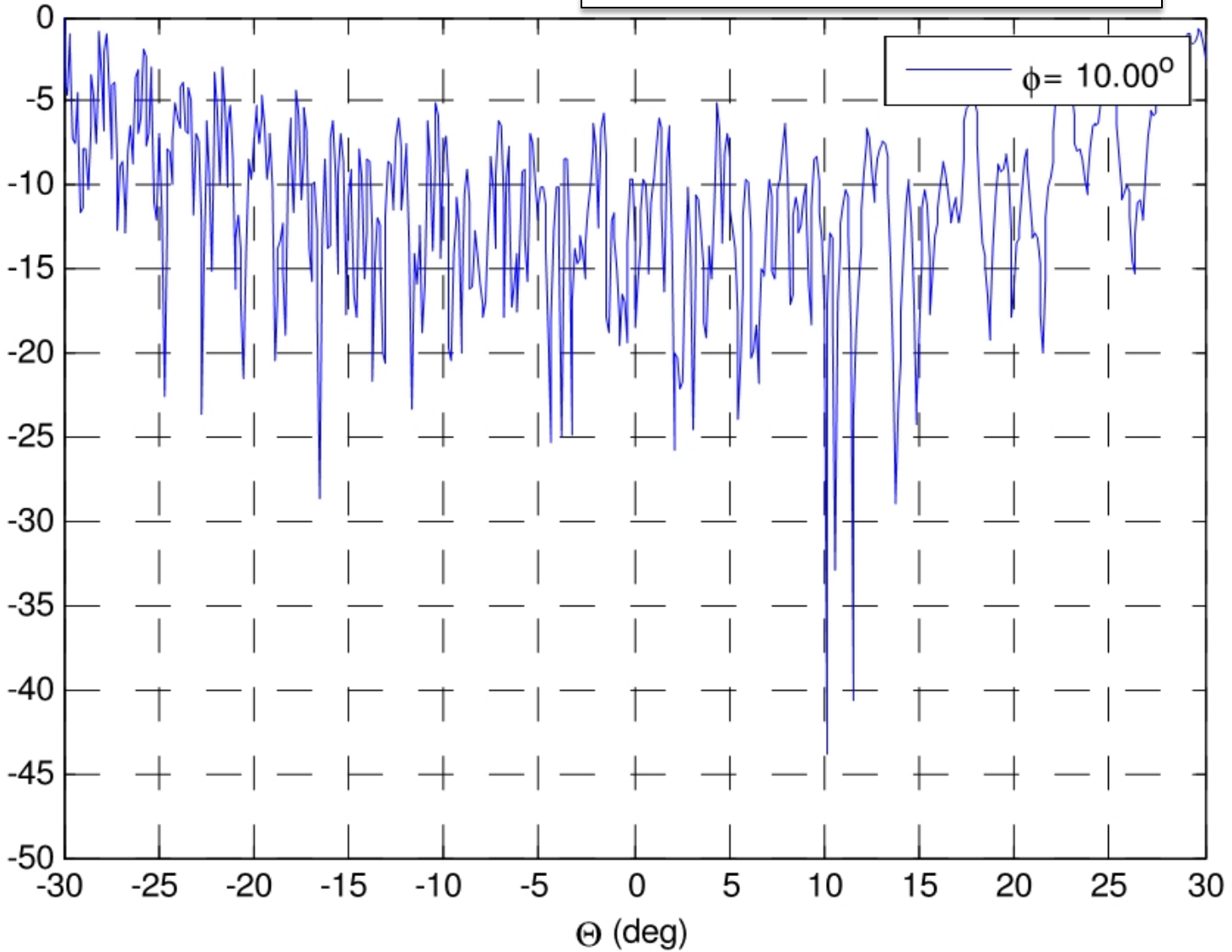


Normalized pattern cuts - farfield

Input file: tx-17.7-lhcp-10.cut,

Peak Off-axis Gain = -19.7 dBi

Off-axis Gain Below Peak (dBi)

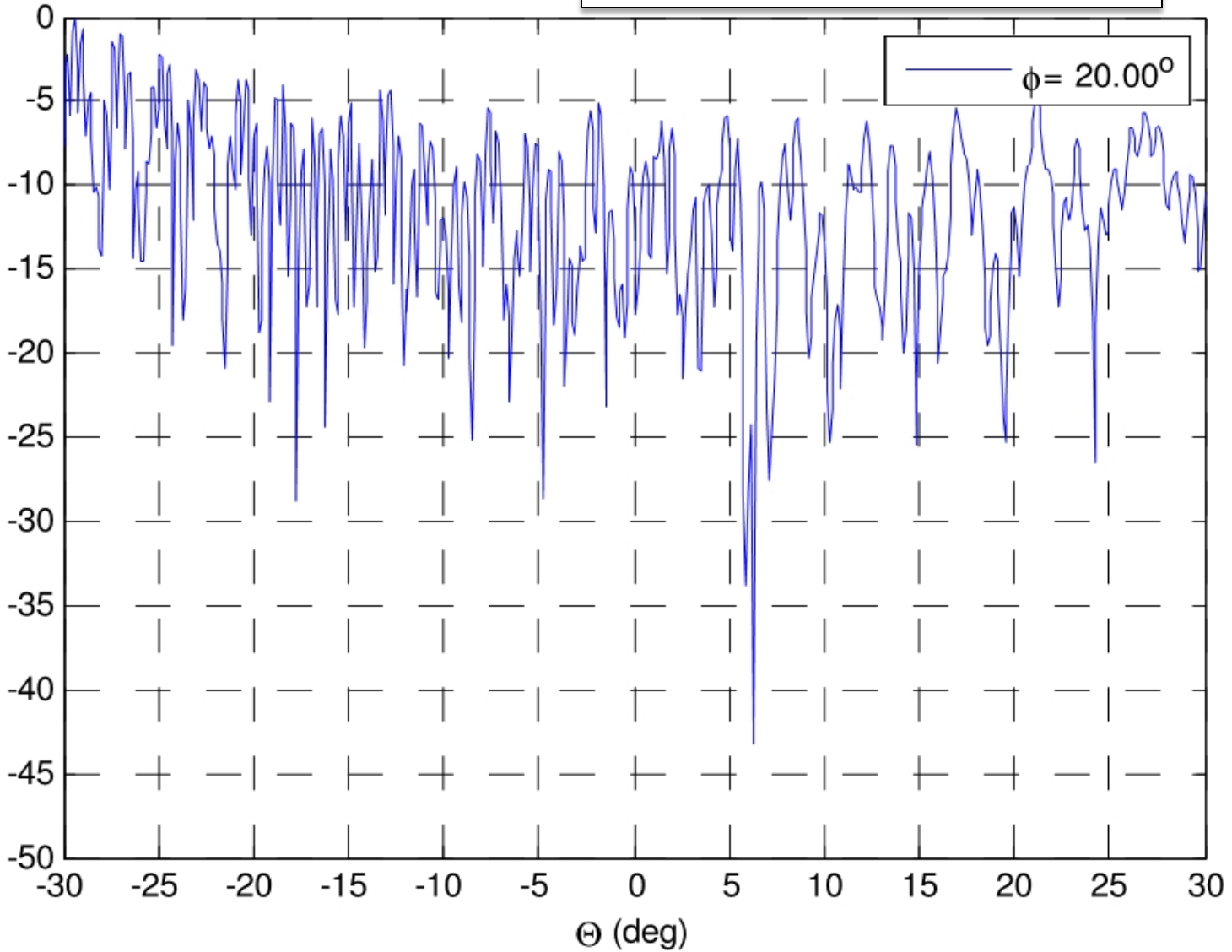


Normalized pattern cuts - farfield

Input file: tx-17.7-lhcp-20.cut,

Peak Off-axis Gain = -20.1 dBi

Off-axis Gain Below Peak (dBi)

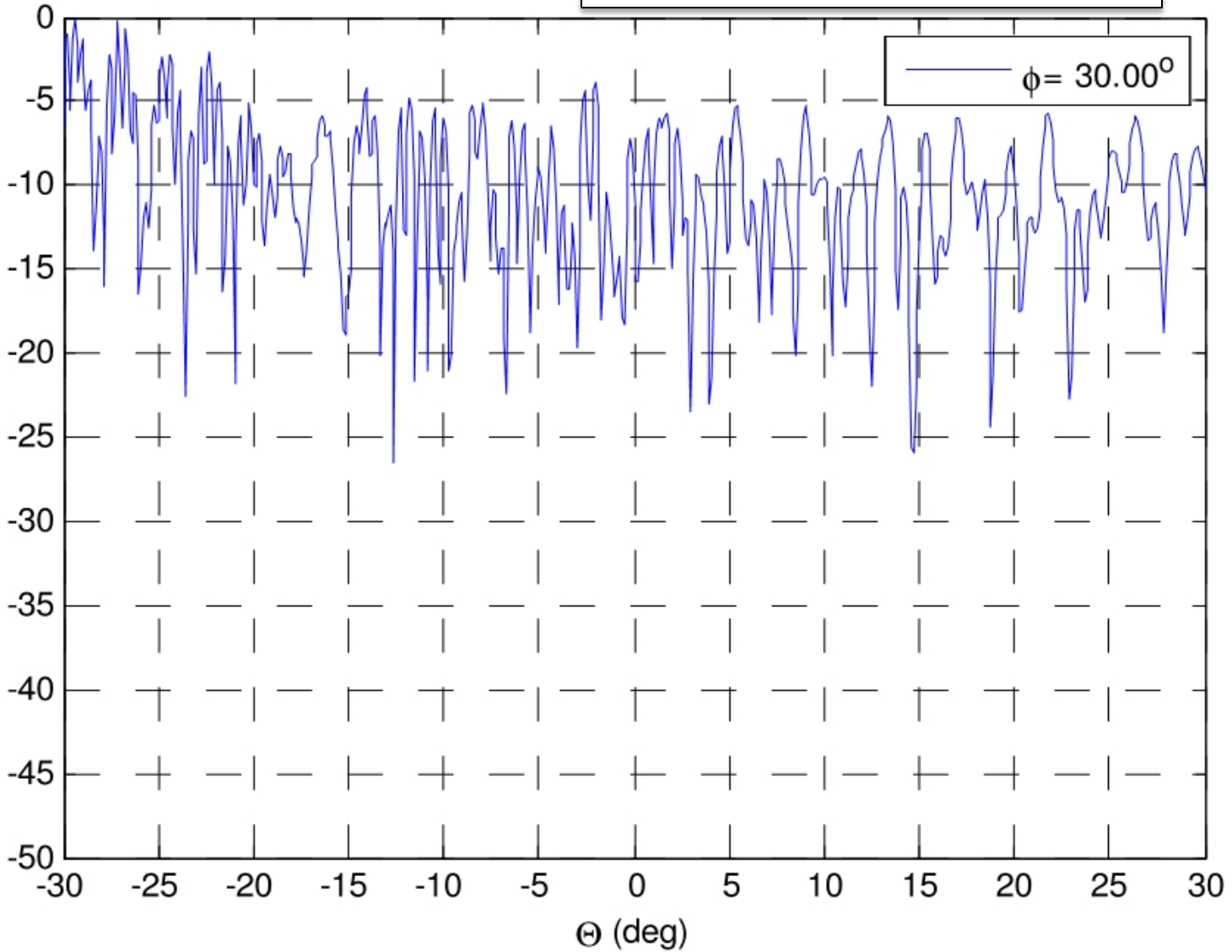


Normalized pattern cuts - farfield

Input file: tx-17.7-lhcp-30.cut,

Peak Off-axis Gain = -21.5 dBi

Off-axis Gain Below Peak (dBi)

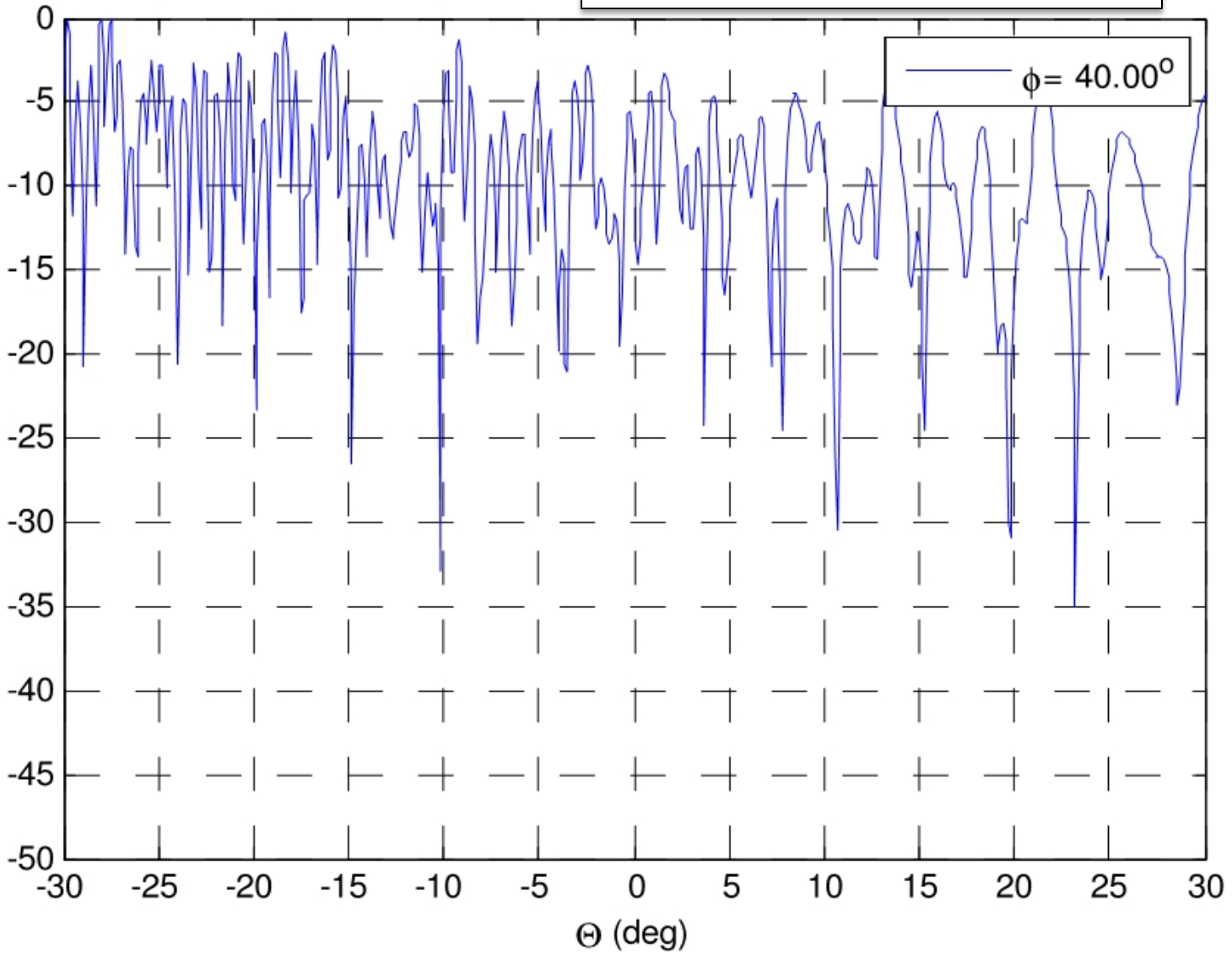


Normalized pattern cuts - farfield

Input file: tx-17.7-lhcp-40.cut,

Peak Off-axis Gain = -23.7 dBi

Off-axis Gain Below Peak (dBi)

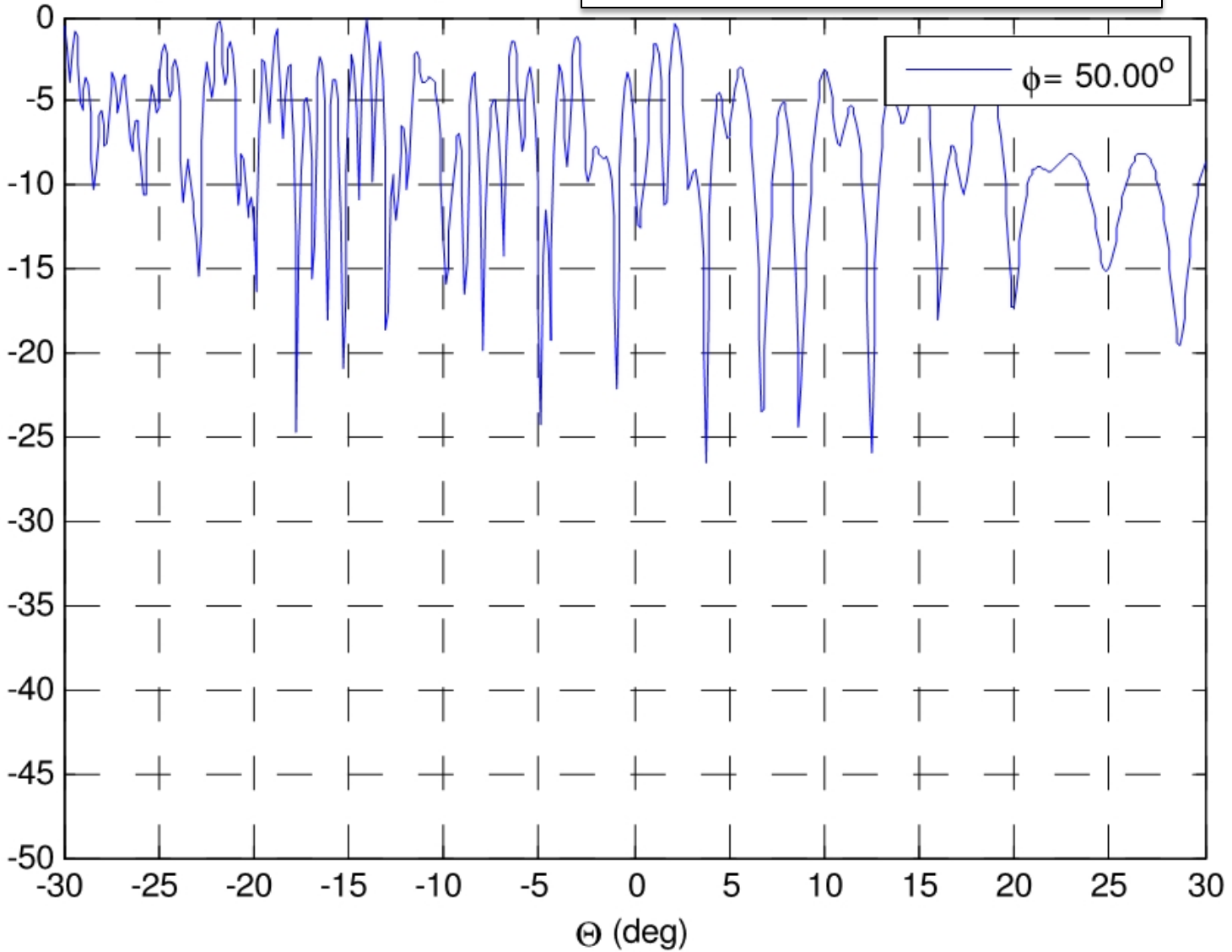


Normalized pattern cuts - farfield

Input file: tx-17.7-lhcp-50.cut,

Peak Off-axis Gain = -25.3 dBi

Off-axis Gain Below Peak (dBi)



Normalized pattern cuts - farfield

Input file: tx-17.7-lhcp-60.cut,

Peak Off-axis Gain = -24.8 dBi

Off-axis Gain Below Peak (dBi)

