

Appendix B Part II: +X Axis
BSSNET2A-115W 17BSS
Antenna Patterns (EIRP Plots)

CONUS Beam Maximum Allowable EIRP / Antenna Gain to Meet $-117\text{dBW}/\text{m}^2/100\text{kHz}$

CONUS BEAM	
Satellite Location ^o WL	-115.00
Nearest DBS Satellite Location ^o WL	-118.80
Minimum Spacing (w/Station Keeping @+--0.05)	3.70
Max PFD Flux Density, $-117\text{ dBW}/\text{m}^2/100\text{ kHz}$	-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	36.4
Tx Power into Antenna, dBW	23.8
Max Antenna Gain to Meet Space Path Spec, dB	22.7
Max Off-Axis EIRP from Plots ⁴ , dBW	5.38
Max Antenna Gain from Plots, dB	-18.42
PFD / Ant Gain Margin, dB	41.1

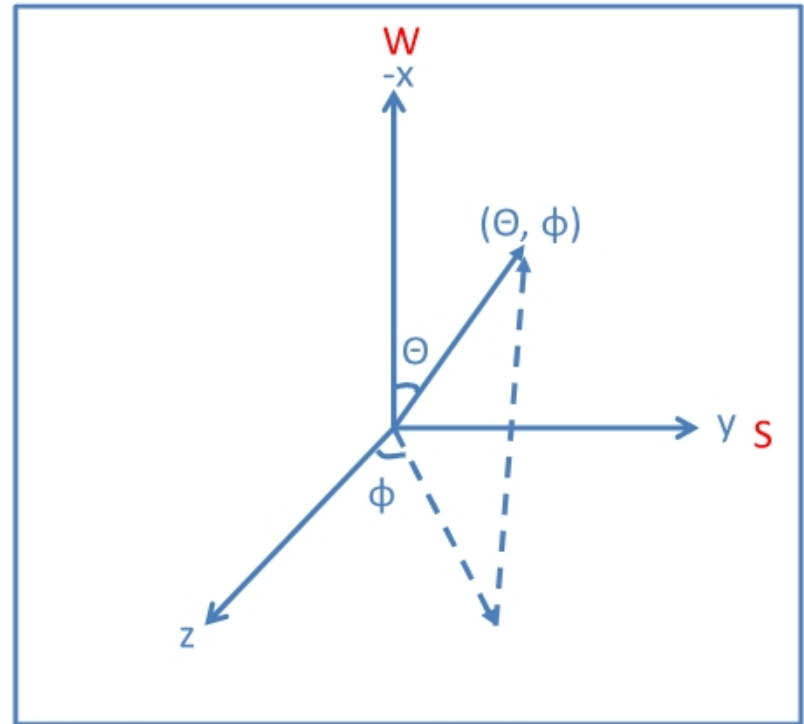
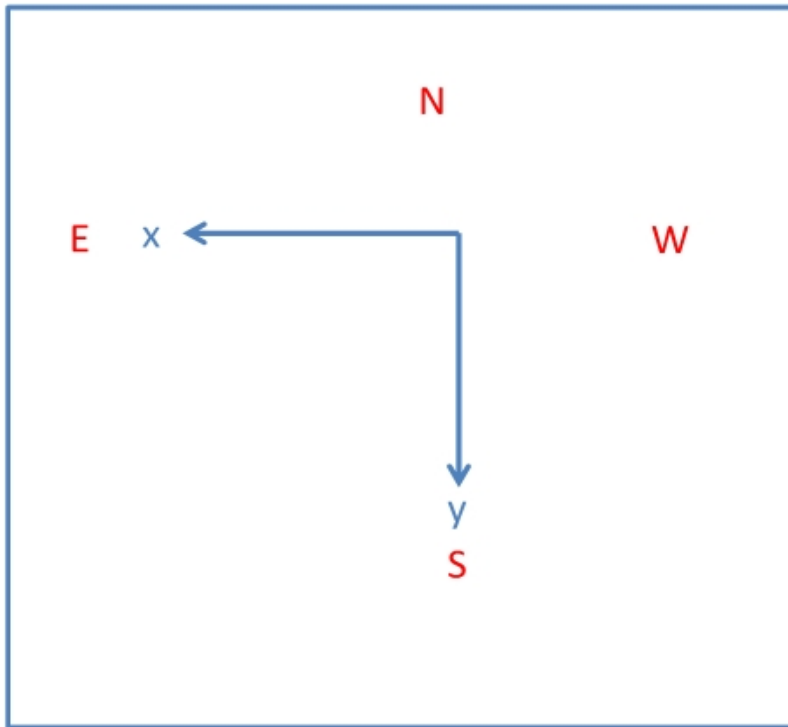
¹ As defined in FCC Section 25.264(a)

² from Schedule S7, column (m) [includes 1.7 dB margin for narrow frequency band, temperature and life]

³ from Schedule S7, column (c)

⁴ Reference to Plot File: tx-17.5-rhcp-10.cut

Coordinate System



CONUS Beam, +X Axis Plots

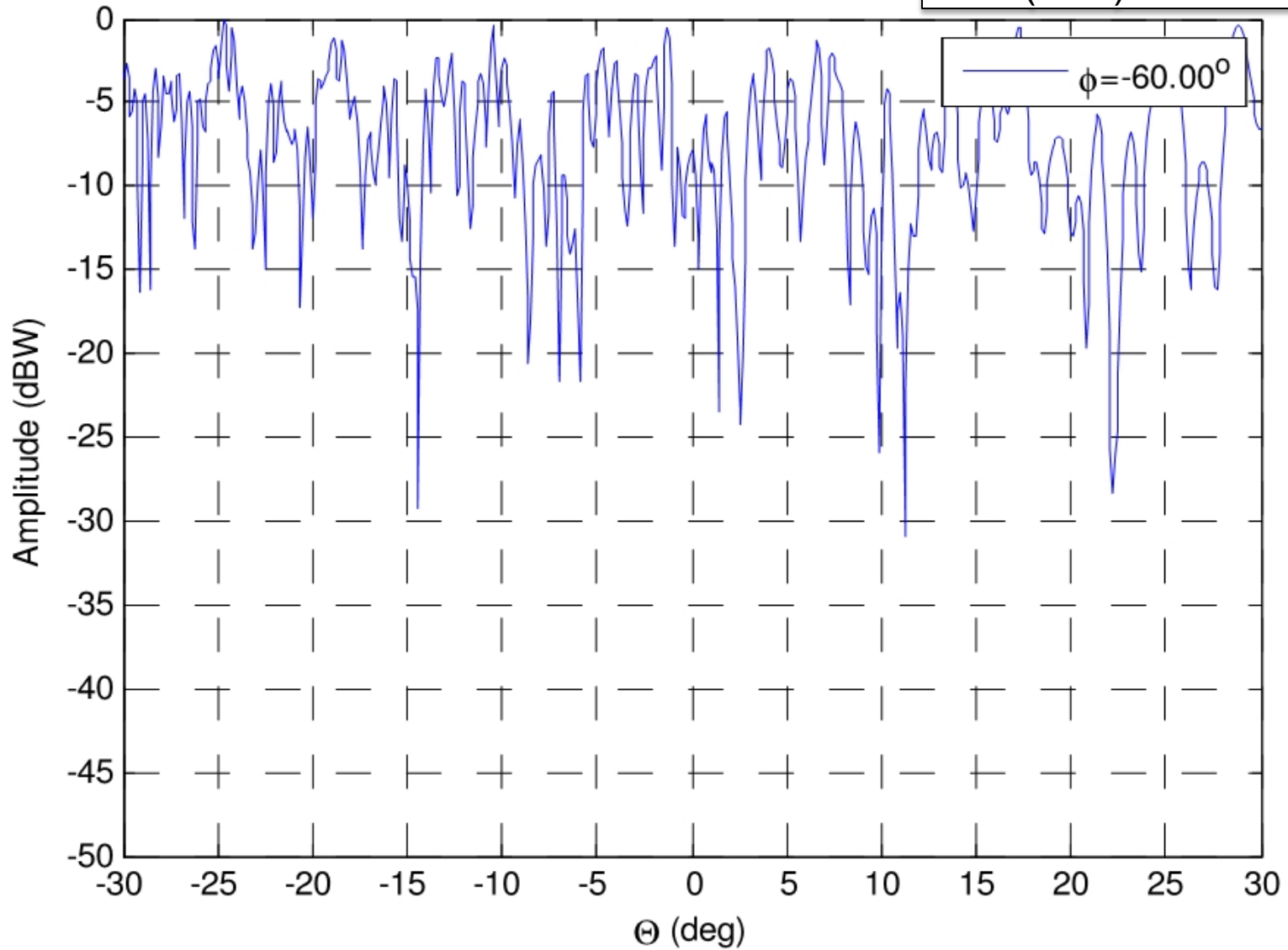
- Both polarizations; RHCP; LHC)
- $-30 < \Theta < 30$ ($\Theta=0$: +X-axis)
- $-60 < \phi < 60$
- Freq = 17.3, 17.5, and 17.7 GHz

- The zero reference line on each plot is the peak EIRP in the title of the chart
- All off-axis EIRP levels are well below the 46.5 dBW level at the 3.7° separation (>40 dB margin)

RHCP at 17.3 GHz

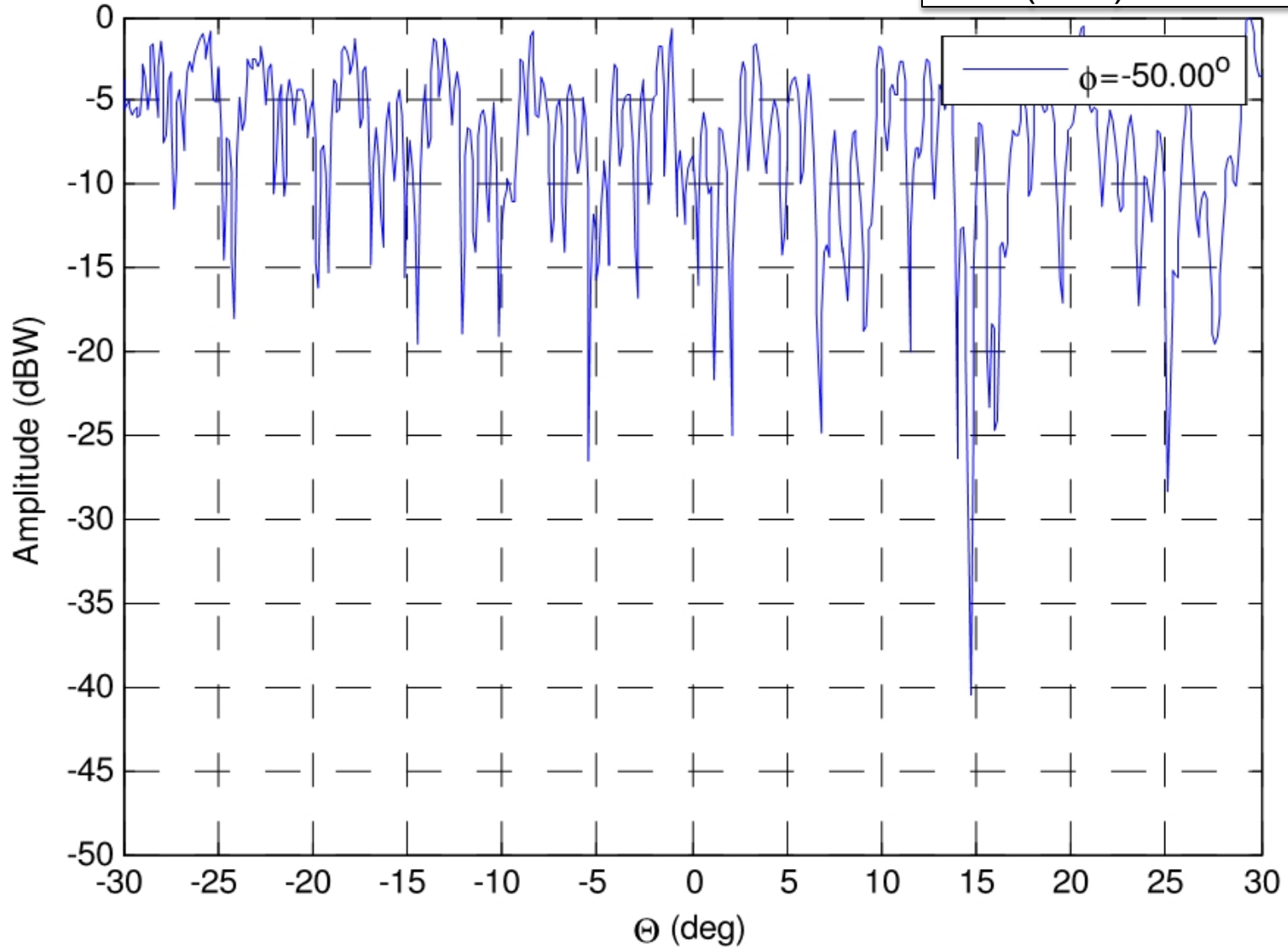
Normalized pattern cuts - farfield

Input file: tx-17.3-rhcp--60.cut, Peak: -1.45 dBW, EIRP (max) = 60.2 dBW



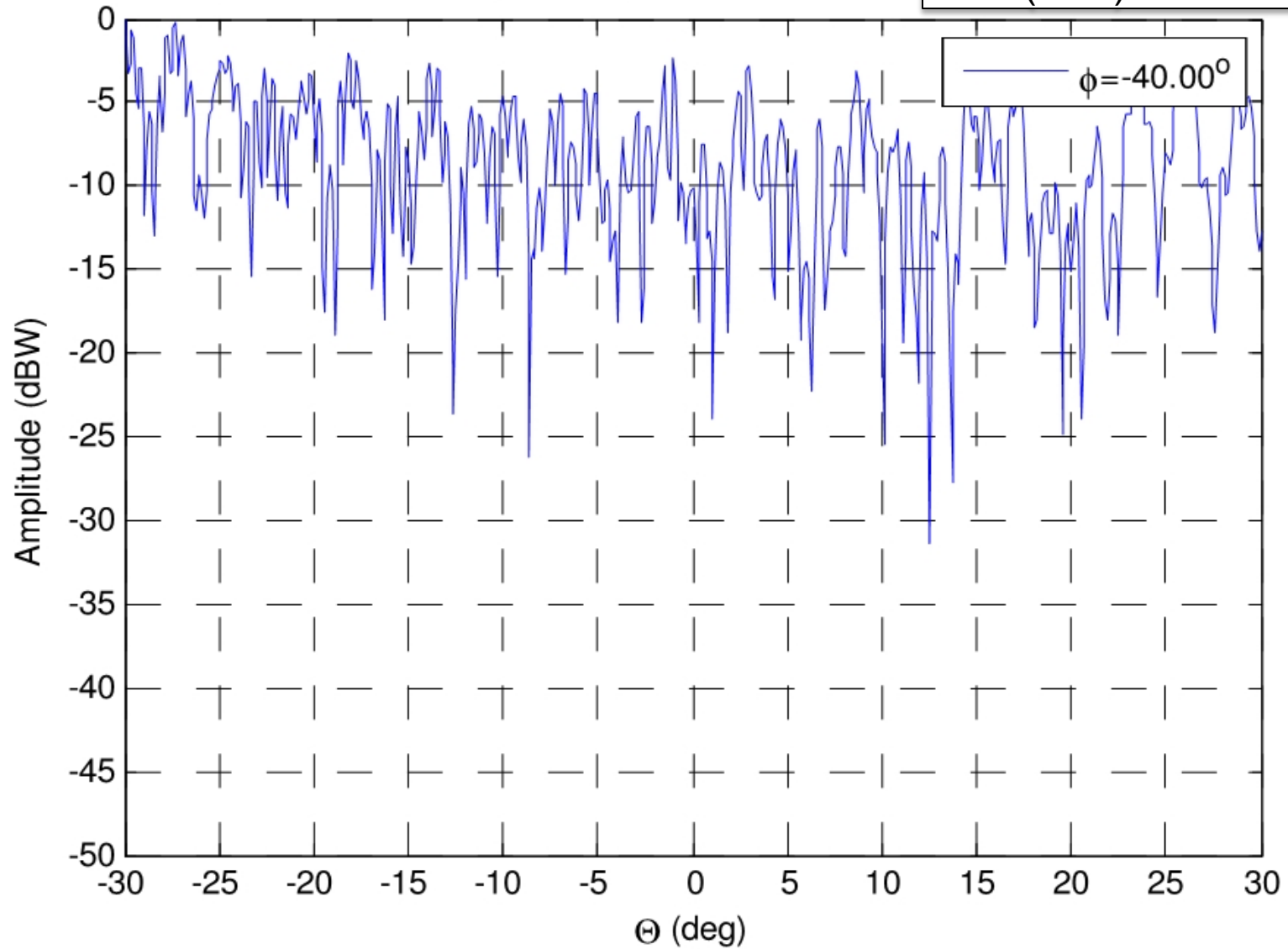
Normalized pattern cuts - farfield

Input file: tx-17.3-rhcp--50.cut, Peak: -0.96 dBW, EIRP (max) = 60.2 dBW



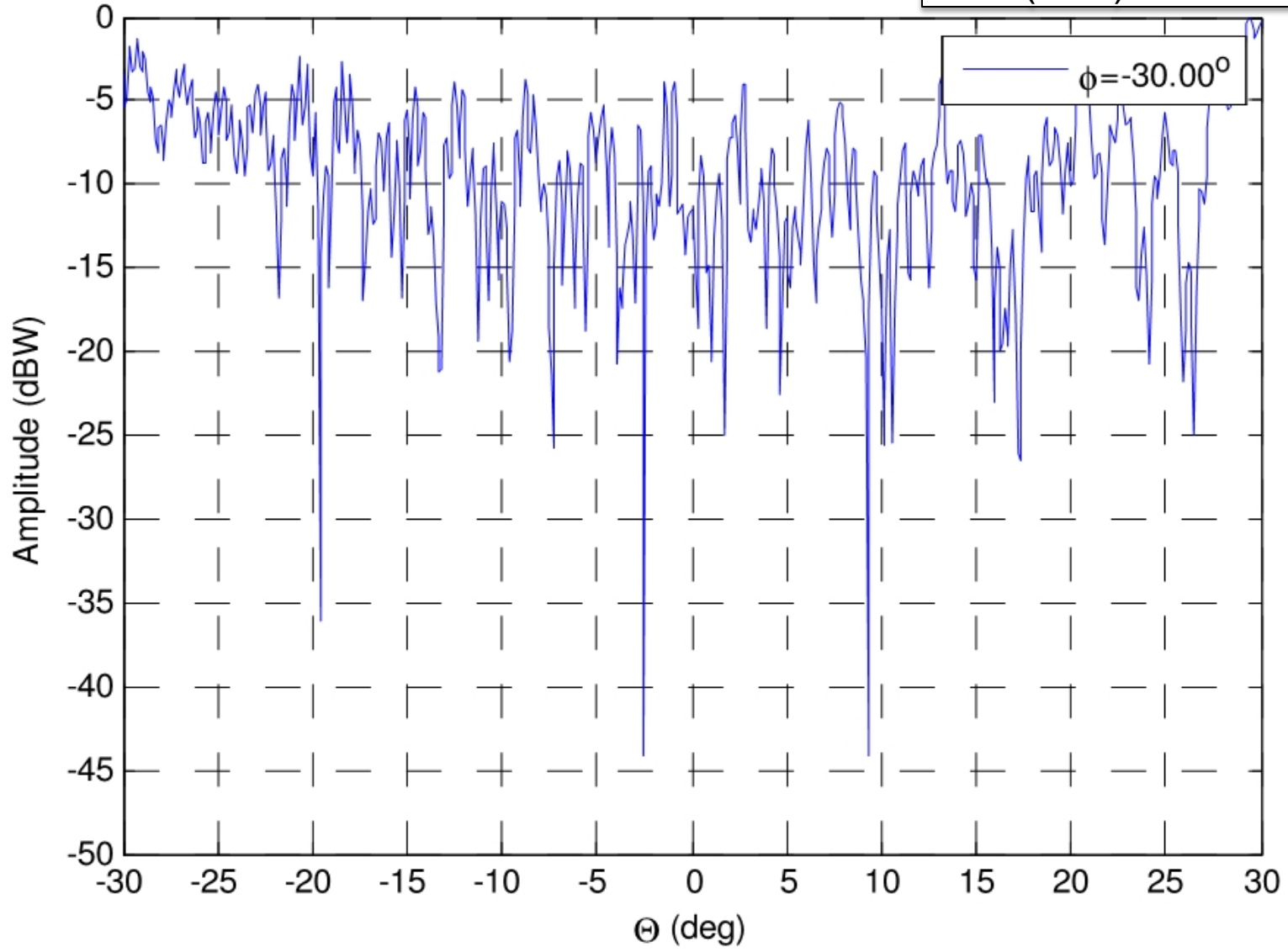
Normalized pattern cuts - farfield

Input file: tx-17.3-rhcp--40.cut, Peak: 0.86 dBW, EIRP (max) = 60.2 dBW



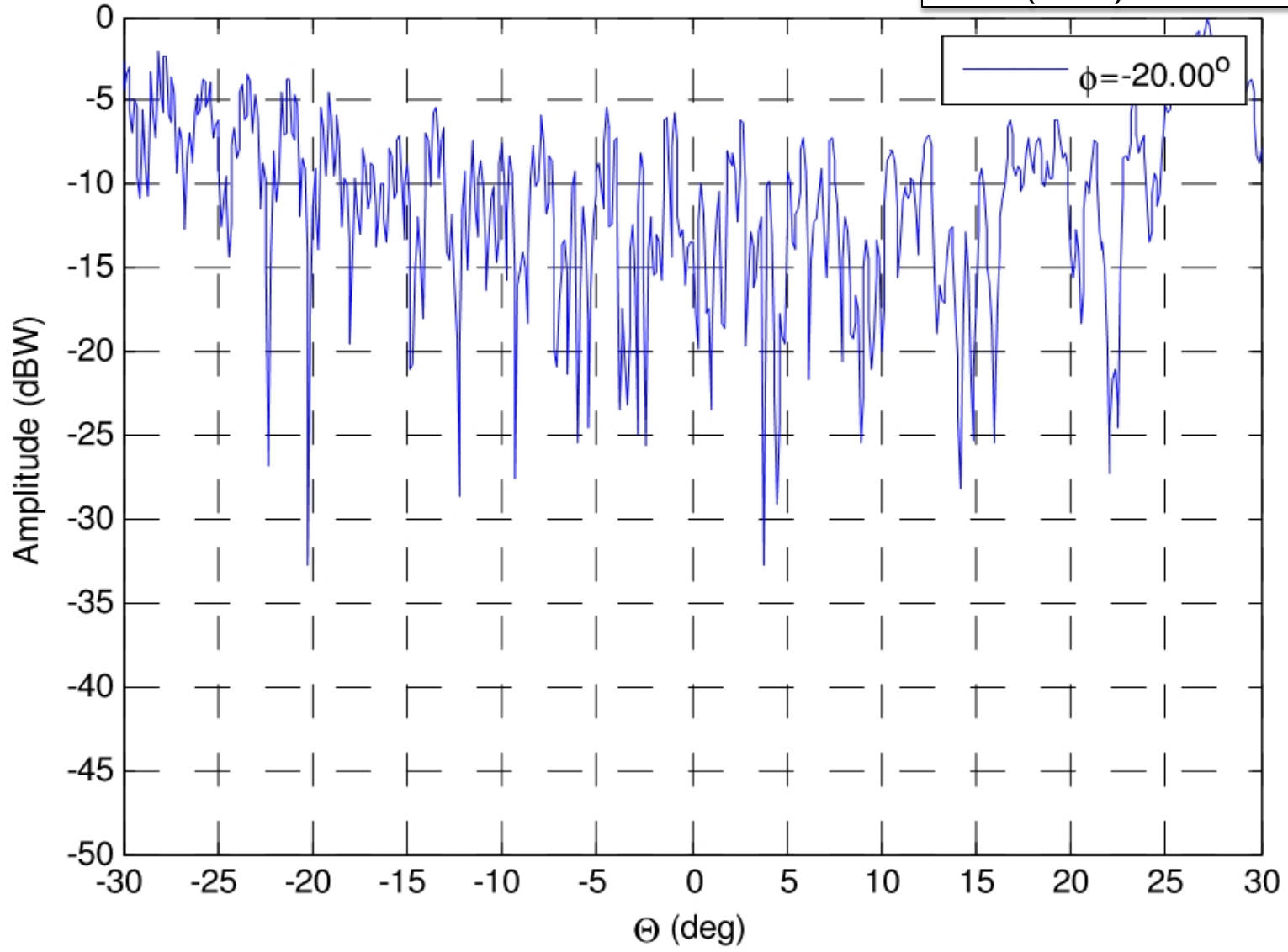
Normalized pattern cuts - farfield

Input file: tx-17.3-rhcp--30.cut, Peak: 2.29 dBW, EIRP (max) = 60.2 dBW



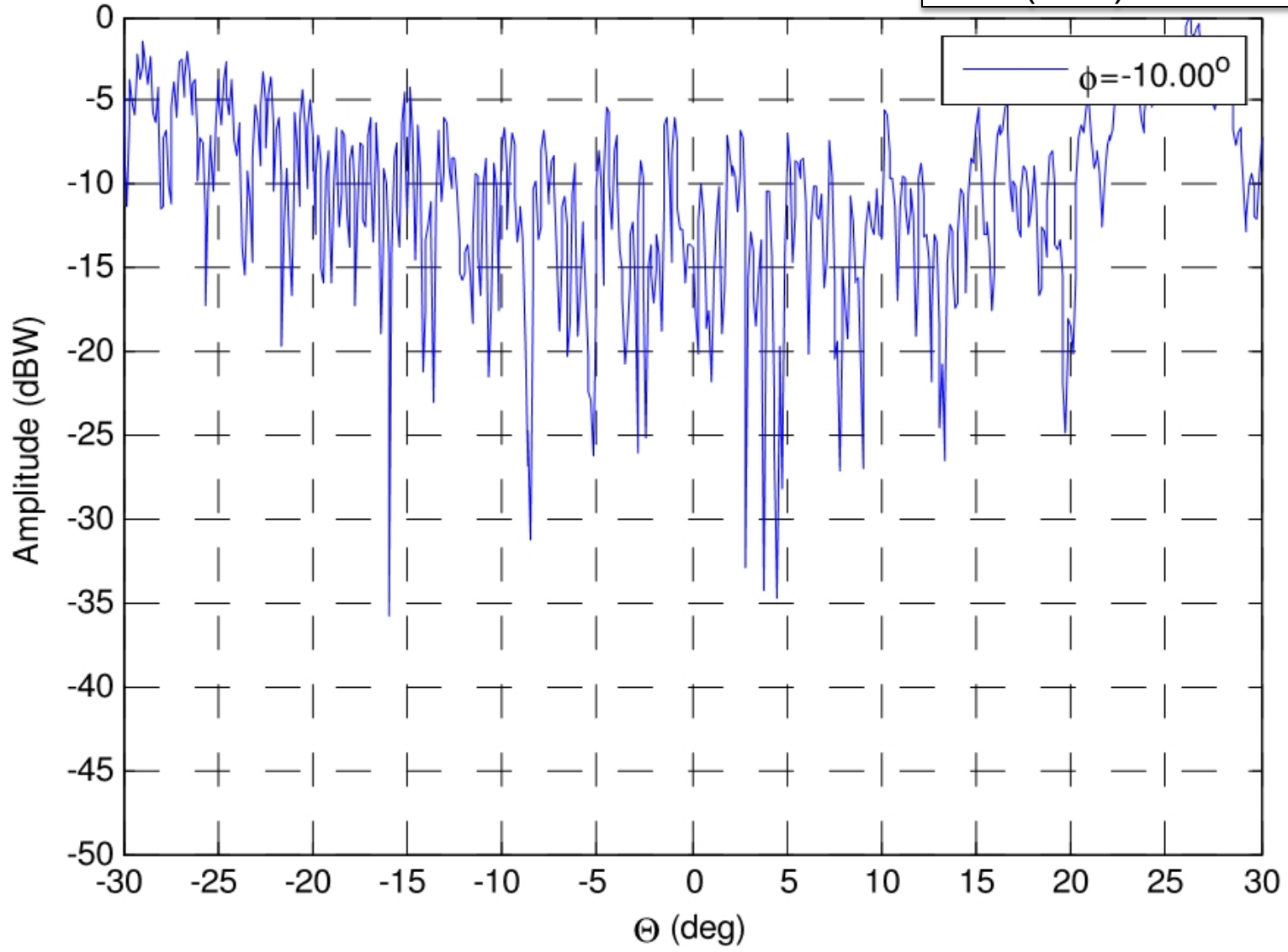
Normalized pattern cuts - farfield

Input file: tx-17.3-rhcp--20.cut, Peak: 4.28 dBW, EIRP (max) = 60.2 dBW



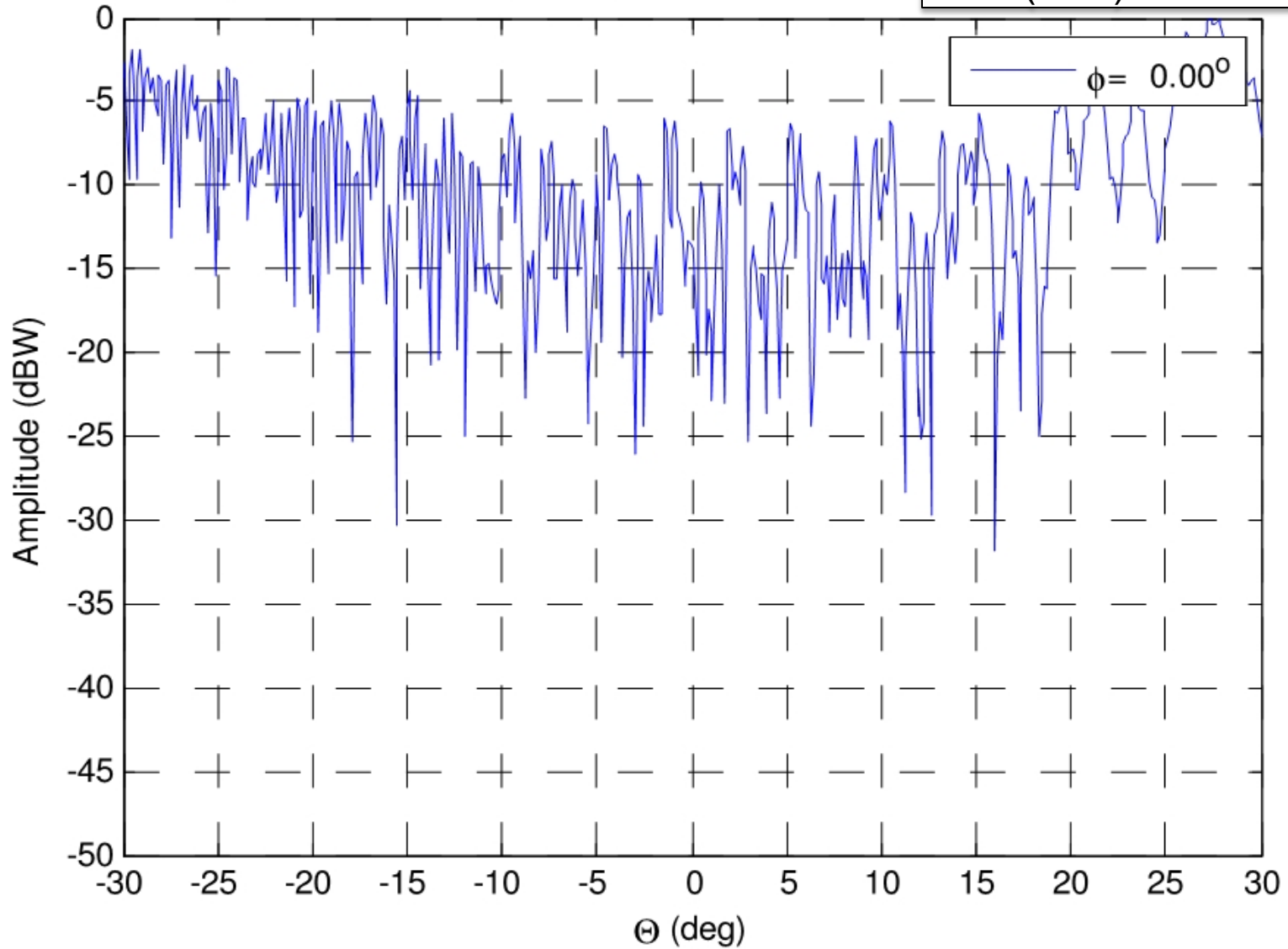
Normalized pattern cuts - farfield

Input file: tx-17.3-rhcp--10.cut, Peak: 4.46 dBW, EIRP (max) = 60.2 dBW



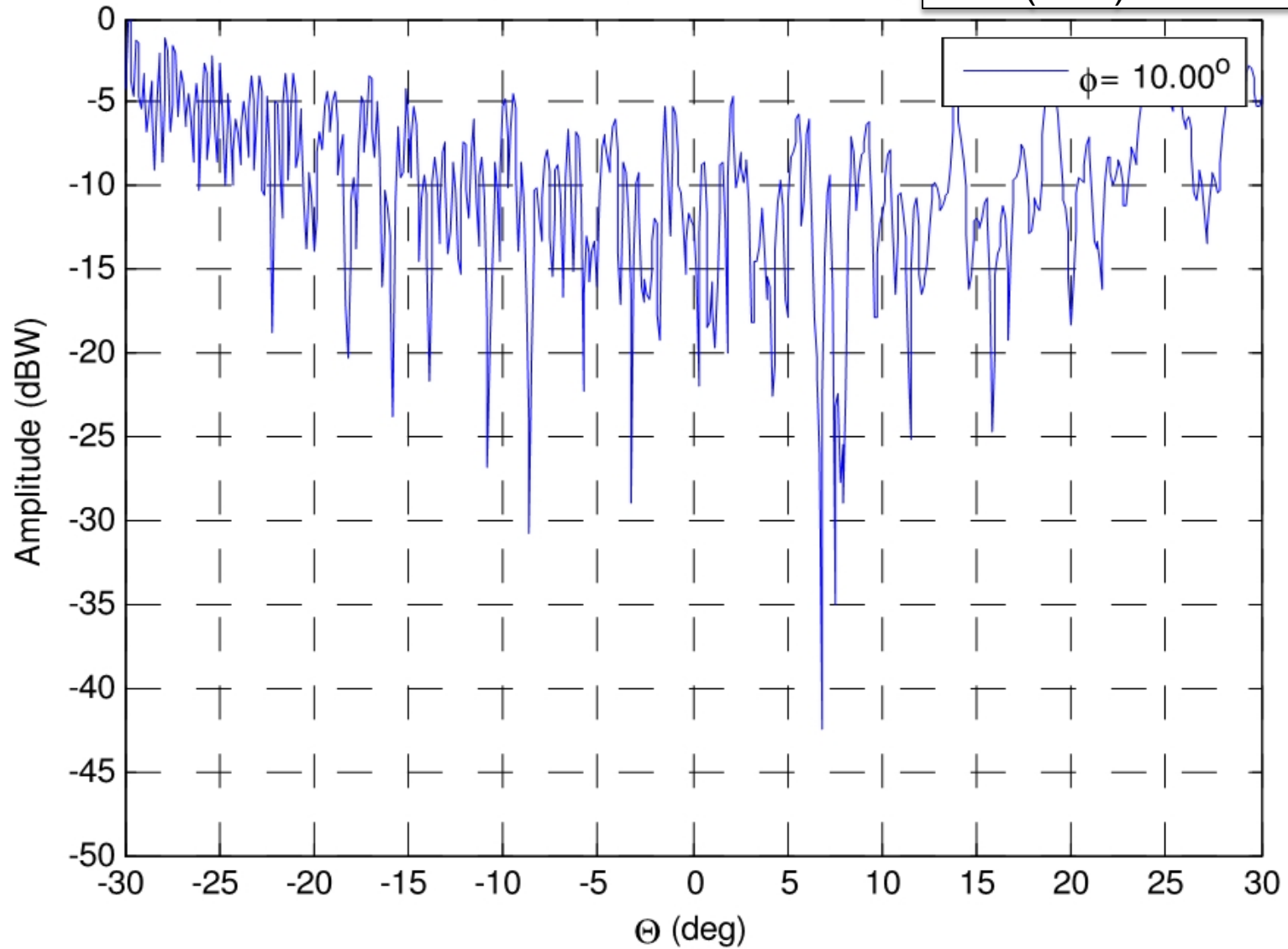
Normalized pattern cuts - farfield

Input file: tx-17.3-rhcp-0.cut, Peak: 4.45 dBW, EIRP (max) = 60.2 dBW



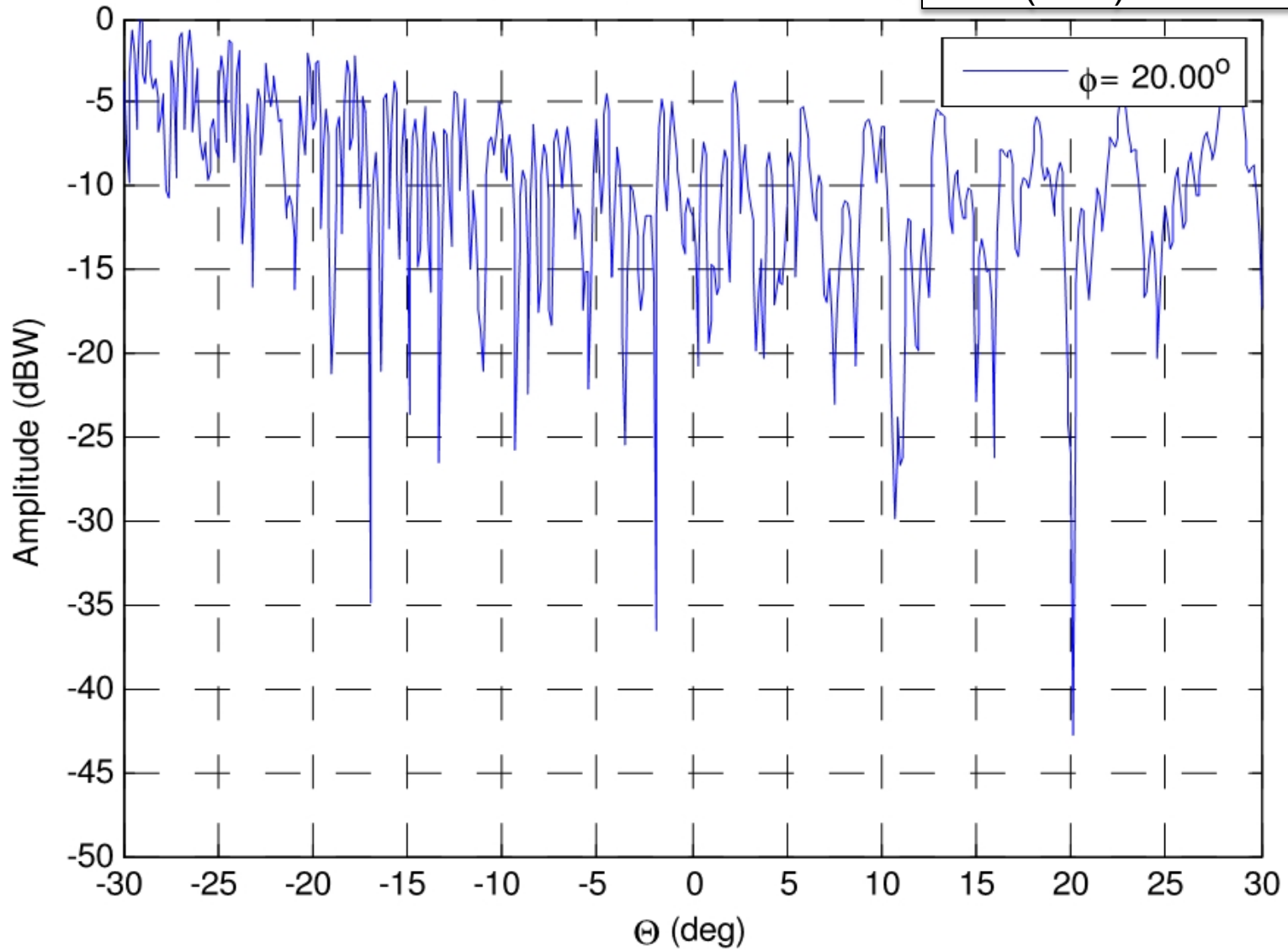
Normalized pattern cuts - farfield

Input file: tx-17.3-rhcp-10.cut, Peak: 3.21 dBW, EIRP (max) = 60.2 dBW



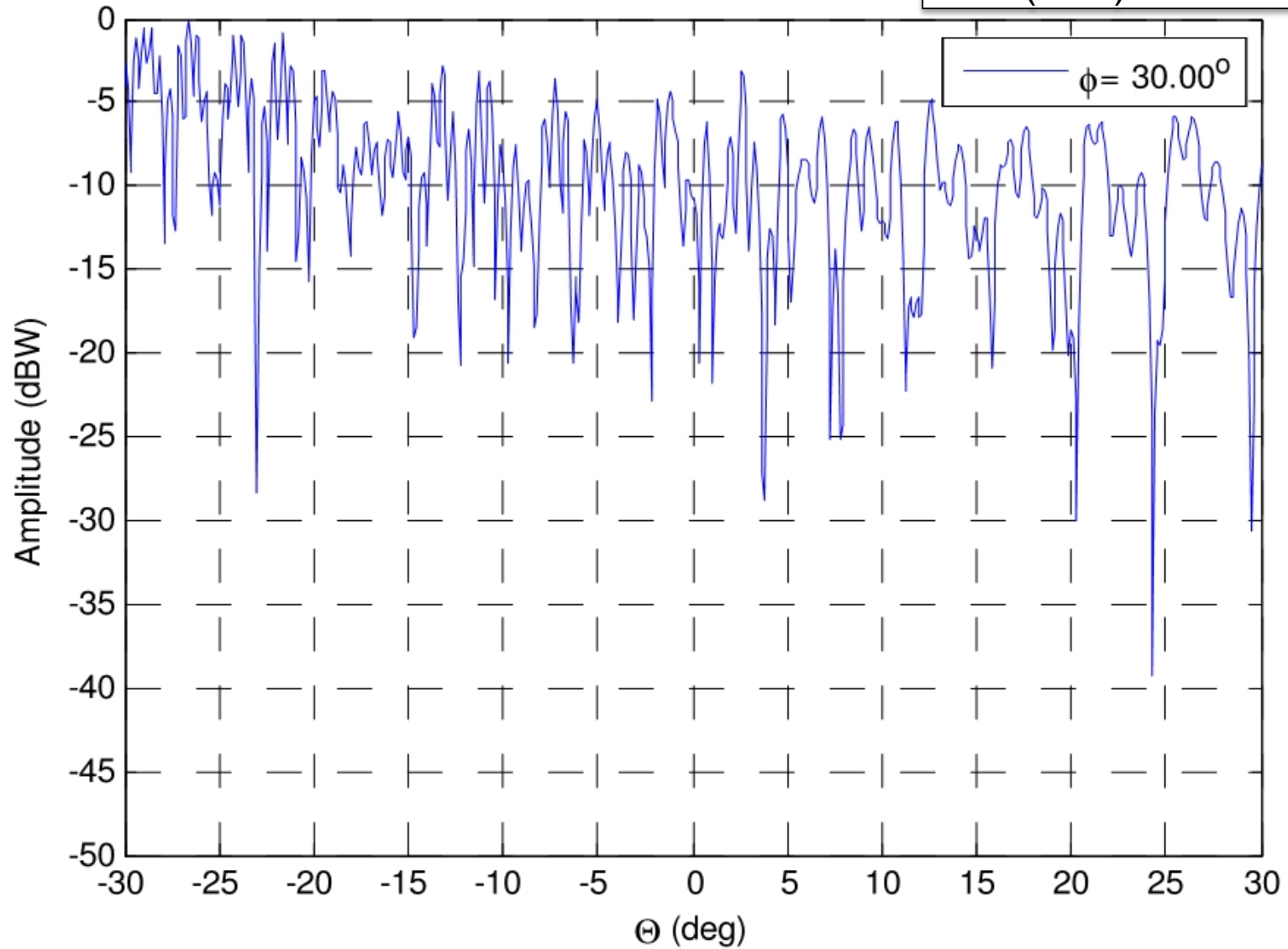
Normalized pattern cuts - farfield

Input file: tx-17.3-rhcp-20.cut, Peak: 2.60 dBW, EIRP (max) = 60.2 dBW



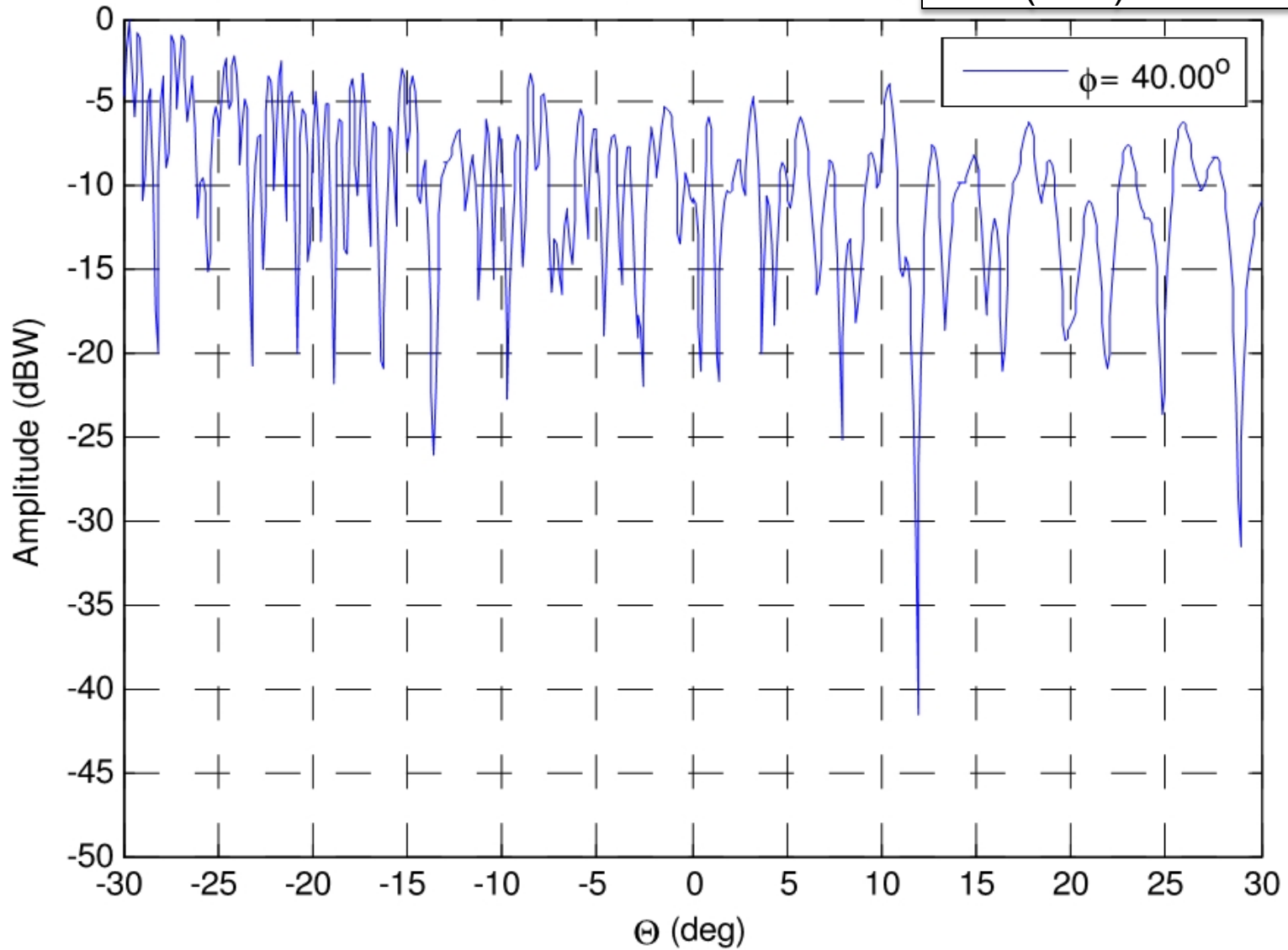
Normalized pattern cuts - farfield

Input file: tx-17.3-rhcp-30.cut, Peak: 1.69 dBW, EIRP (max) = 60.2 dBW



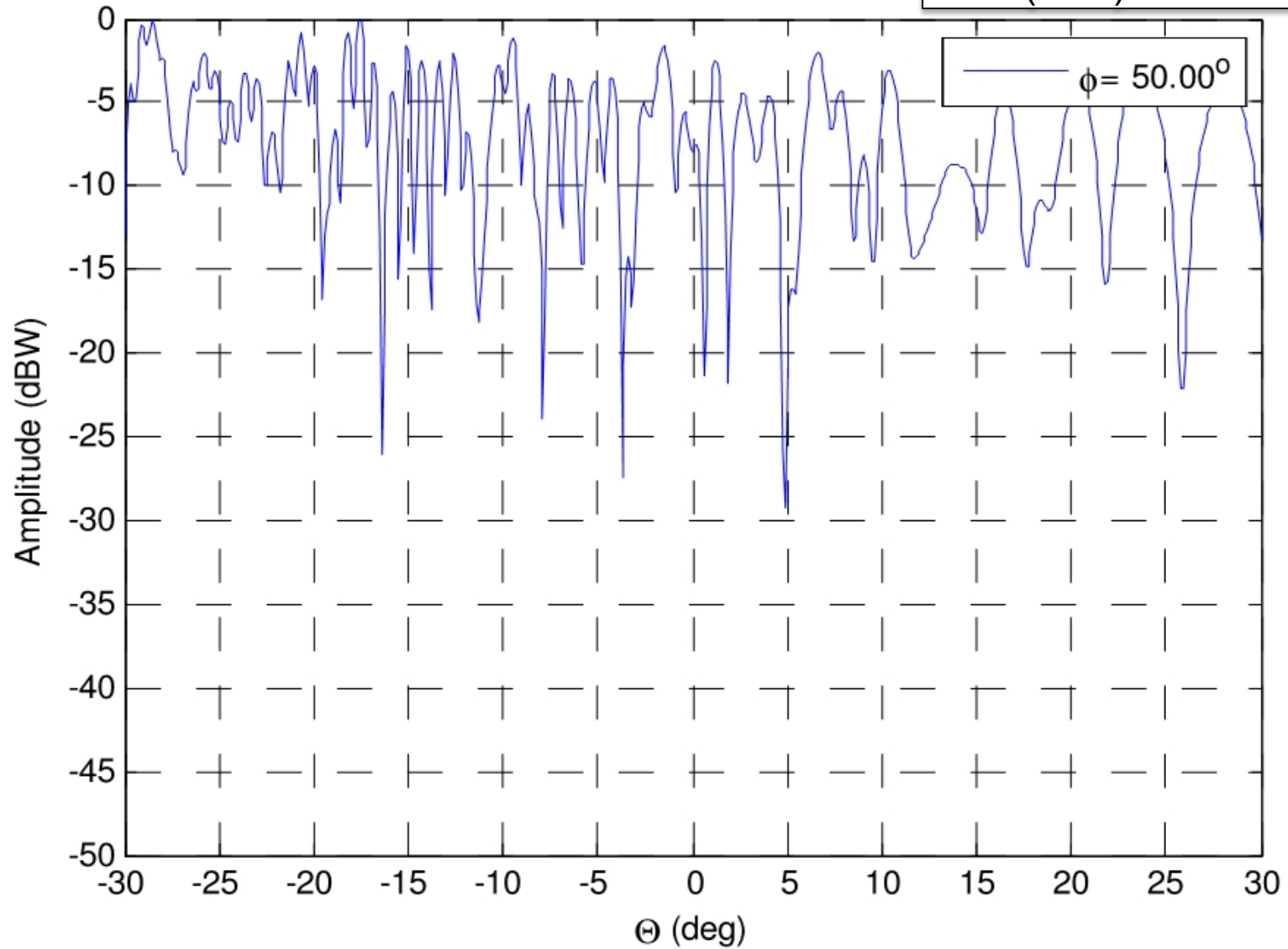
Normalized pattern cuts - farfield

Input file: tx-17.3-rhcp-40.cut, Peak: 1.83 dBW, EIRP (max) = 60.2 dBW



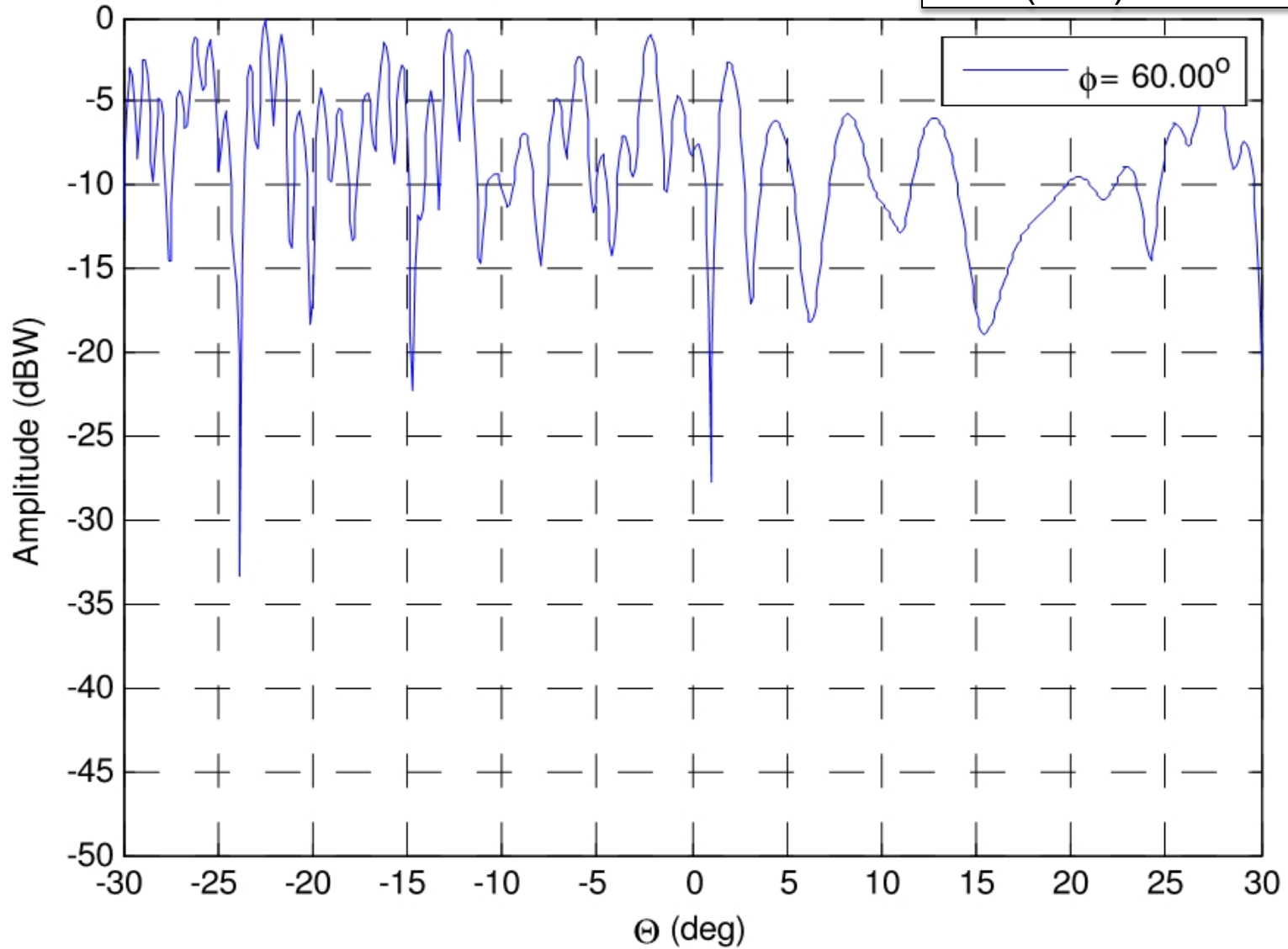
Normalized pattern cuts - farfield

Input file: tx-17.3-rhcp-50.cut, Peak: -1.21 dBW, EIRP (max) = 60.2 dBW



Normalized pattern cuts - farfield

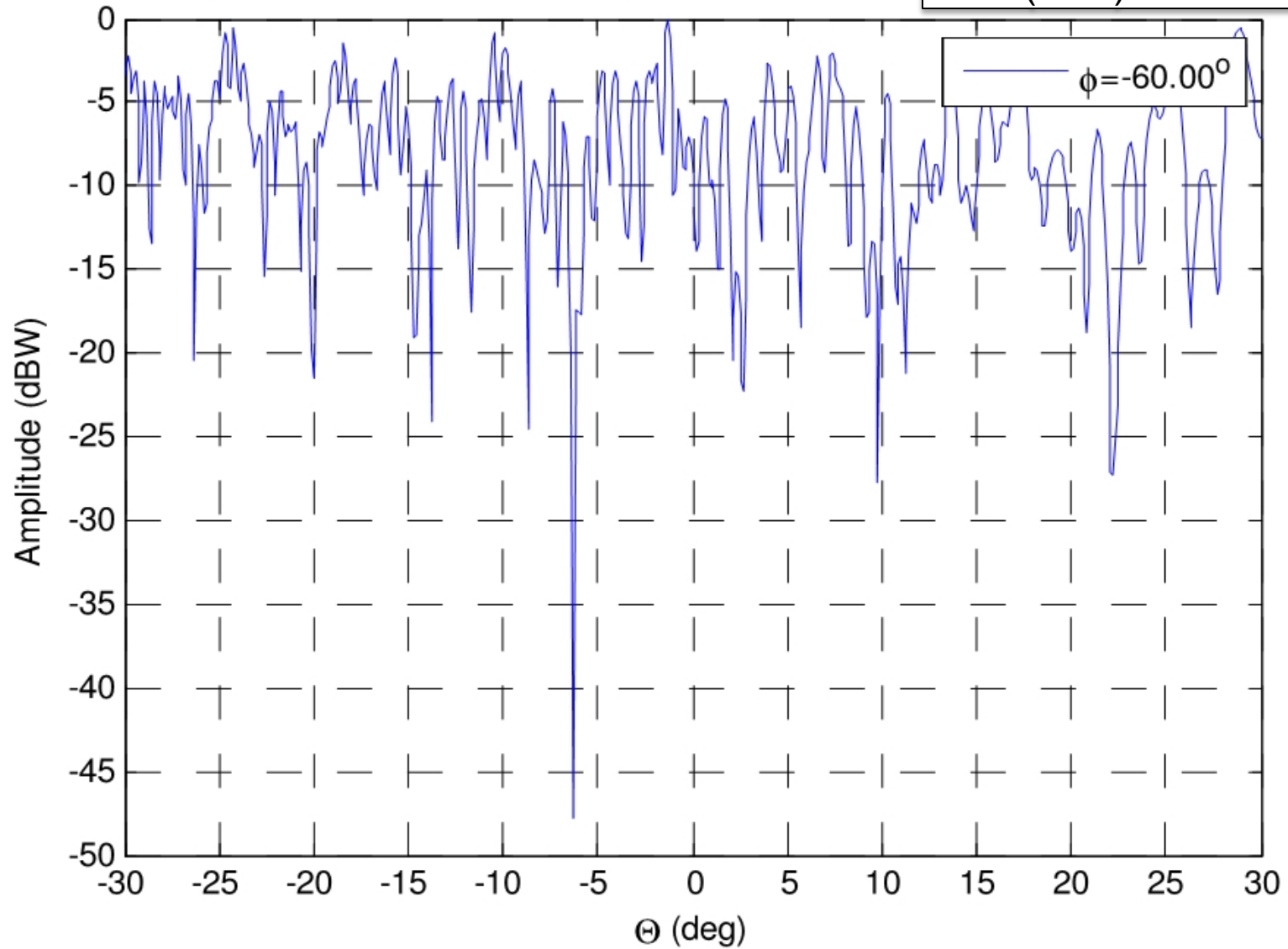
Input file: tx-17.3-rhcp-60.cut, Peak: -1.00 dBW, EIRP (max) = 60.2 dBW



LHCP at 17.3 GHz

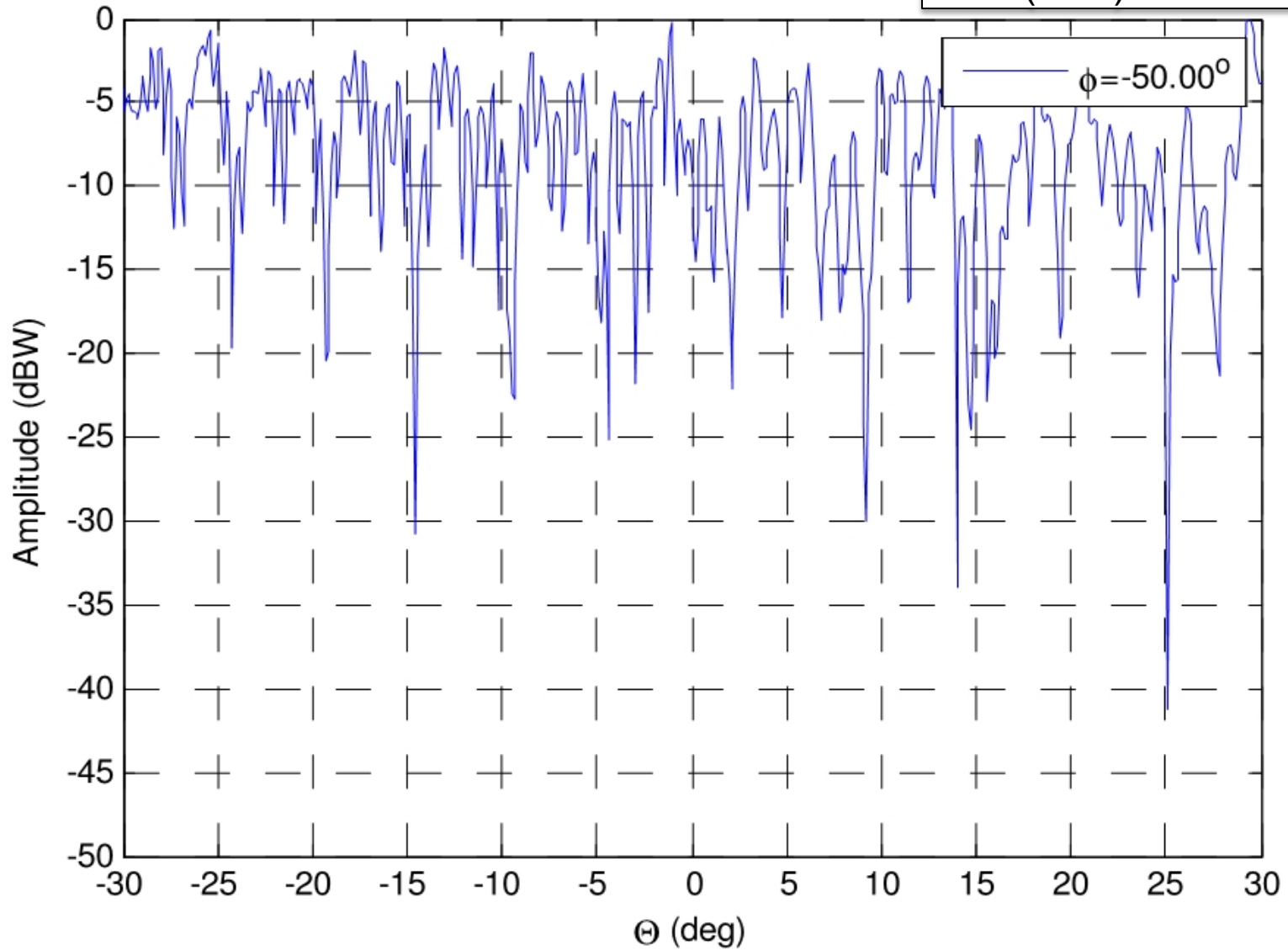
Normalized pattern cuts - farfield

Input file: tx-17.3-lhcp--60.cut, Peak: -0.84 dBW, EIRP (max) = 60.2 dBW



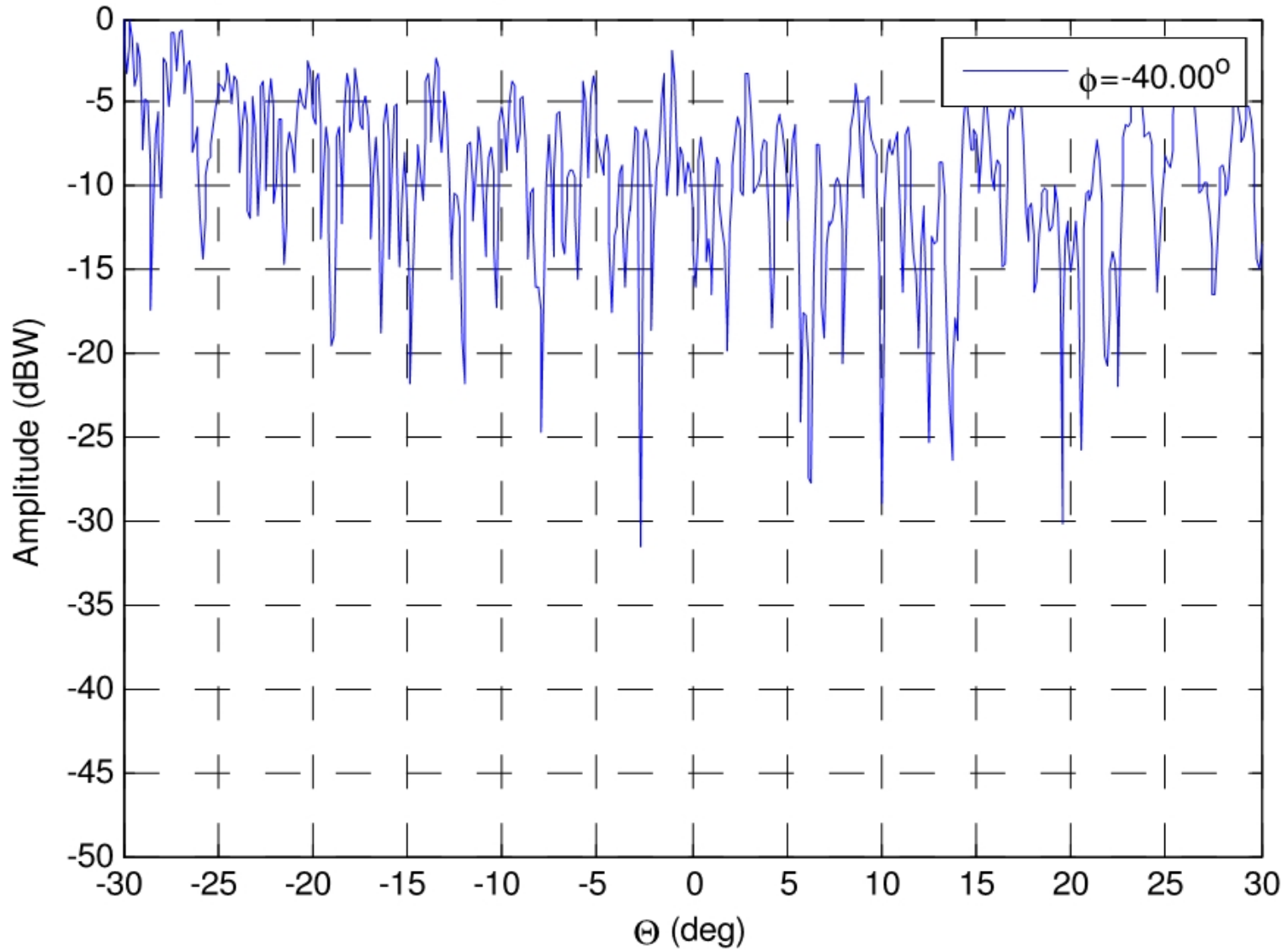
Normalized pattern cuts - farfield

Input file: tx-17.3-lhcp--50.cut, Peak: -0.42 dBW, EIRP (max) = 60.2 dBW



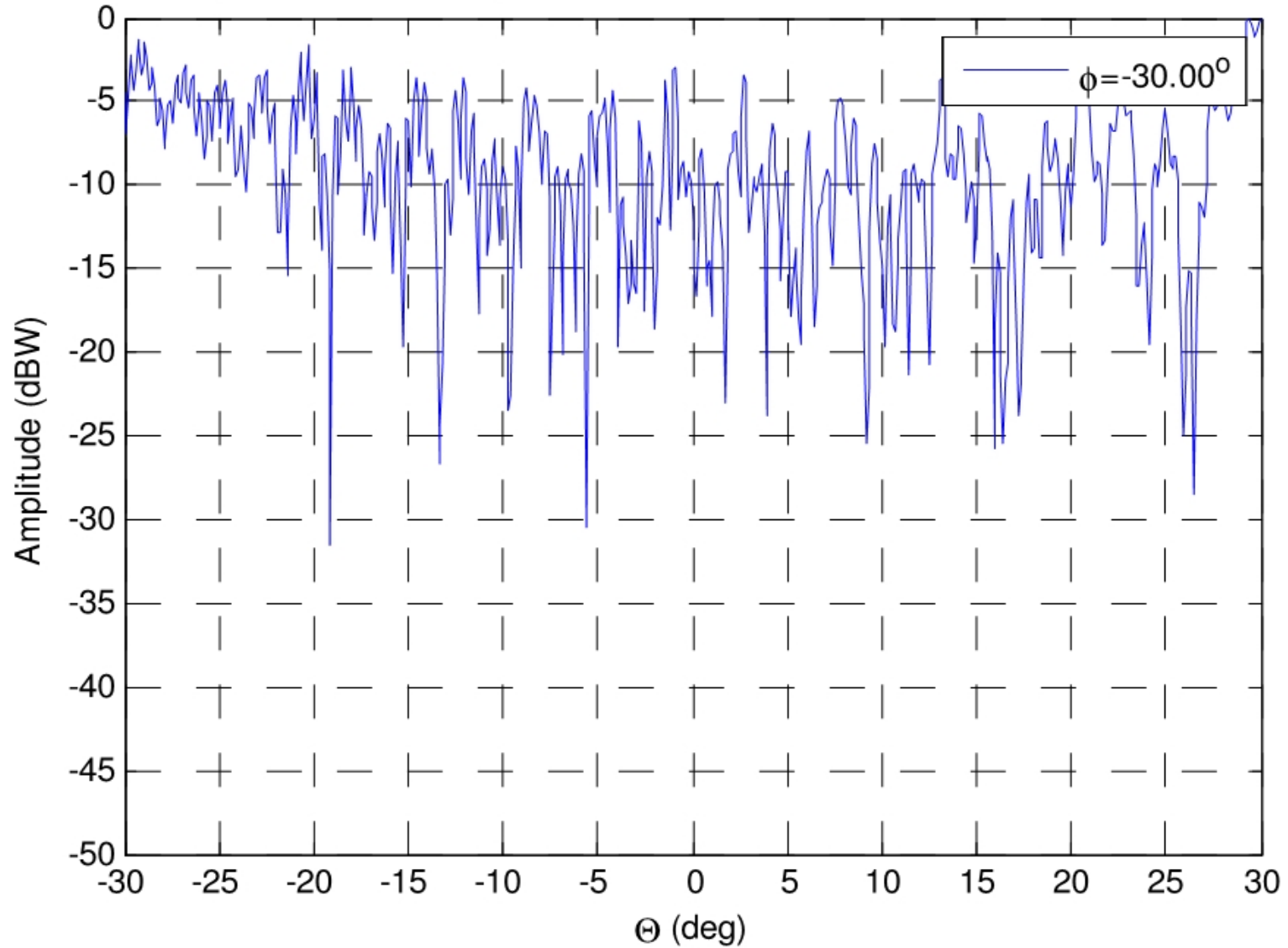
Normalized pattern cuts - farfield

Input file: tx-17.3-lhcp--40.cut, Peak: 1.18 dBW, Date: 06-Oct-2011



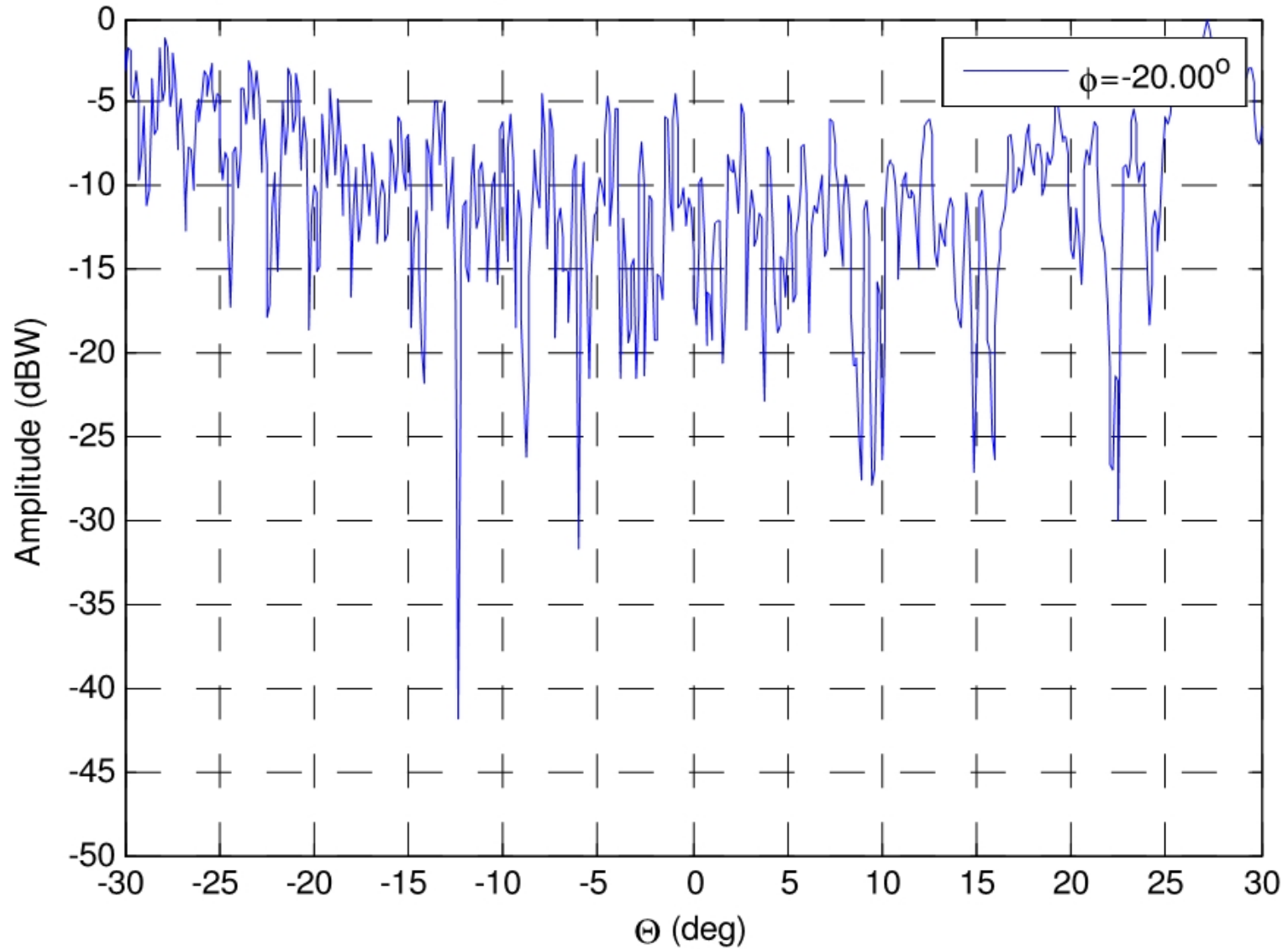
Normalized pattern cuts - farfield

Input file: tx-17.3-lhcp--30.cut, Peak: 1.95 dBW, Date: 06-Oct-2011



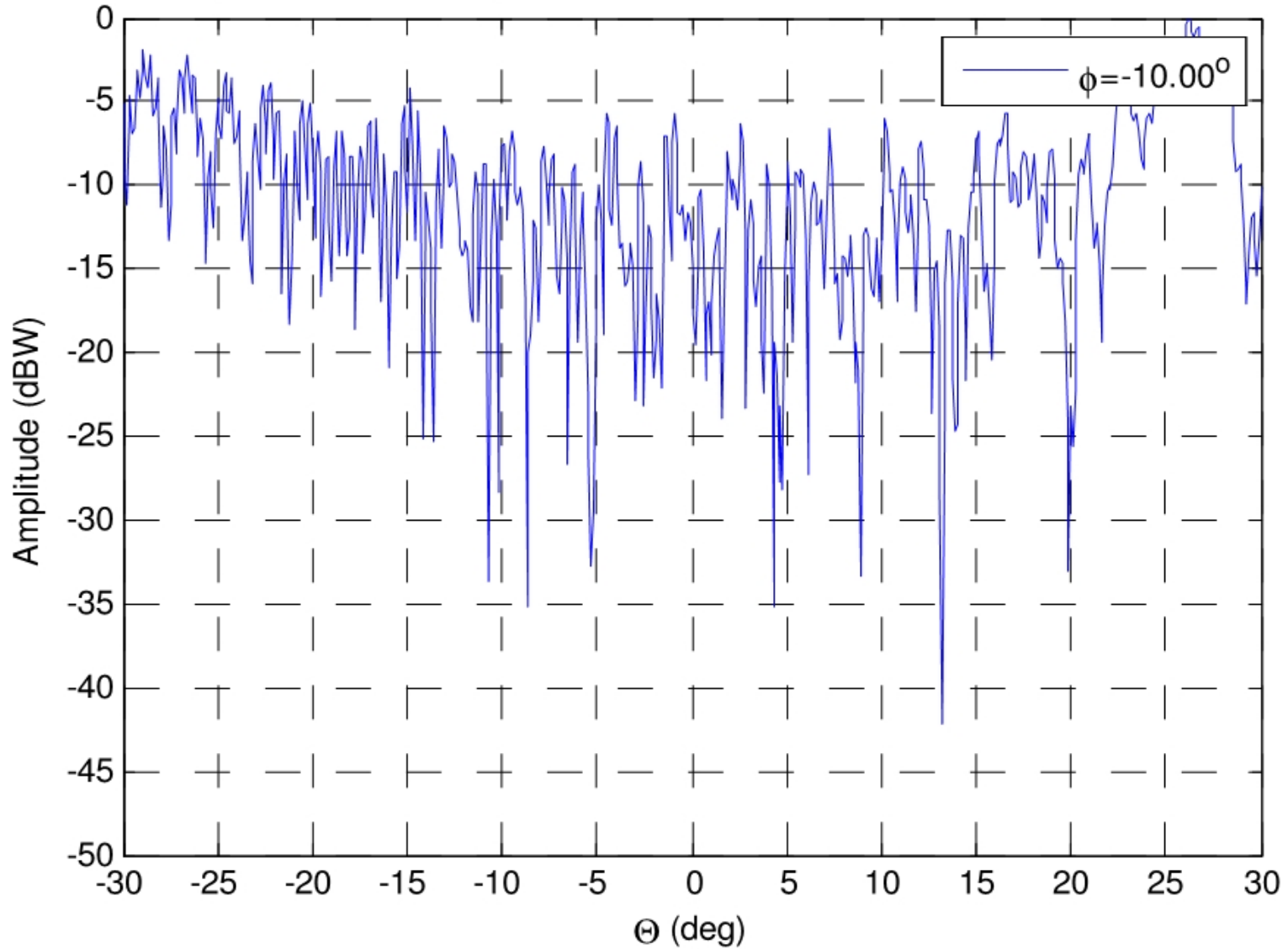
Normalized pattern cuts - farfield

Input file: tx-17.3-lhcp--20.cut, Peak: 3.65 dBW, Date: 06-Oct-2011



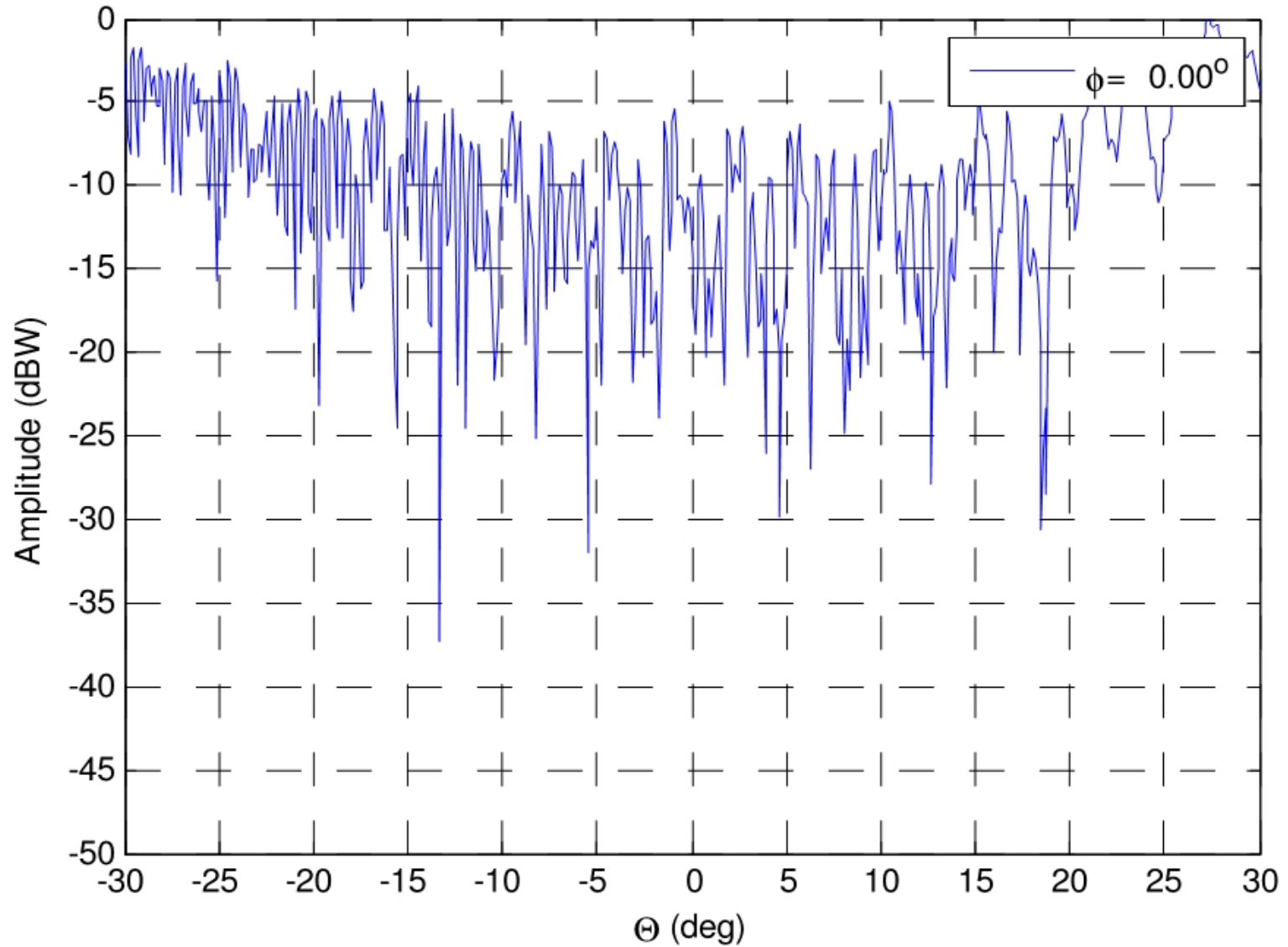
Normalized pattern cuts - farfield

Input file: tx-17.3-lhcp--10.cut, Peak: 4.73 dBW, Date: 06-Oct-2011



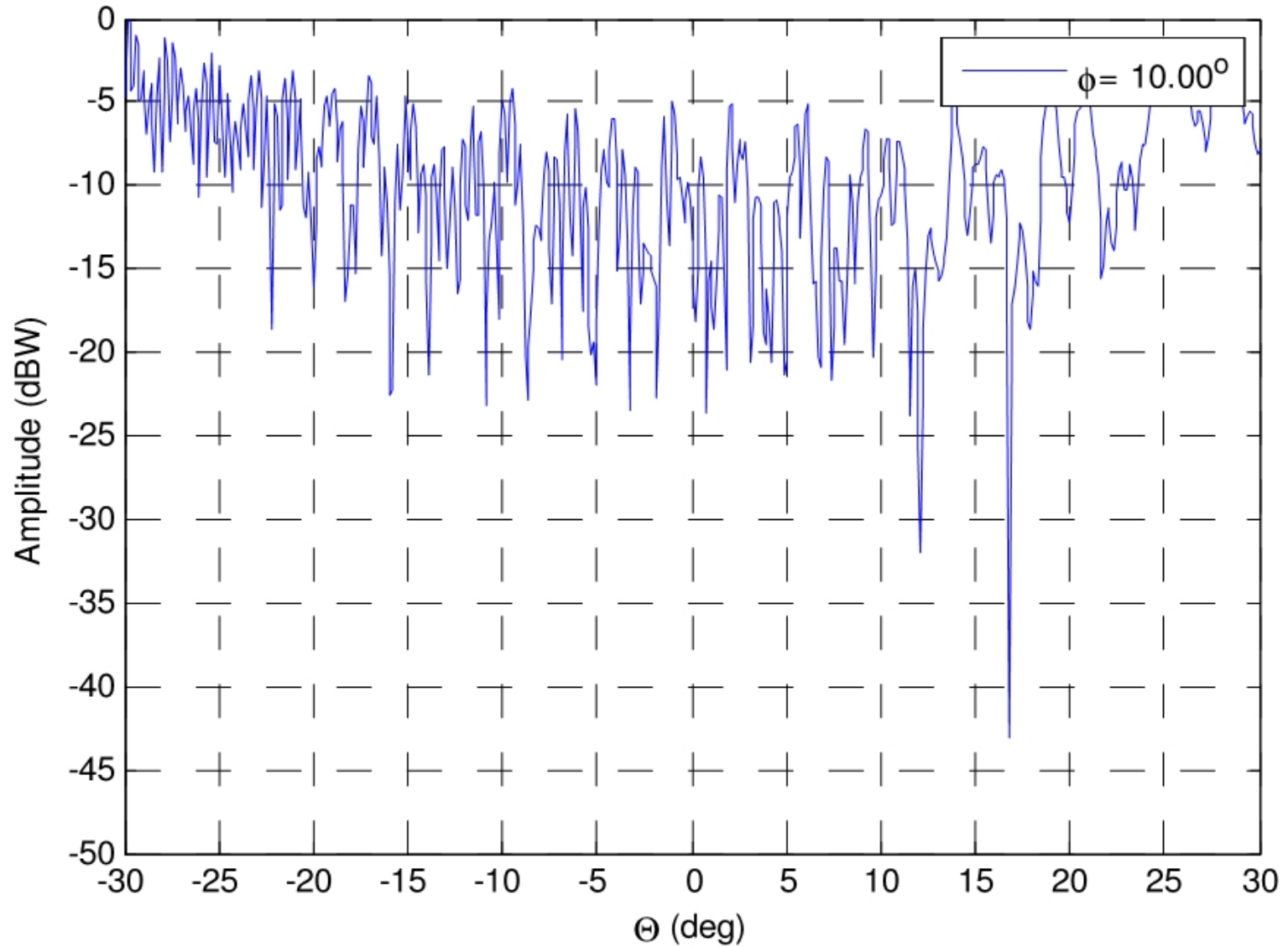
Normalized pattern cuts - farfield

Input file: tx-17.3-lhcp-0.cut, Peak: 4.12 dBW, Date: 06-Oct-2011



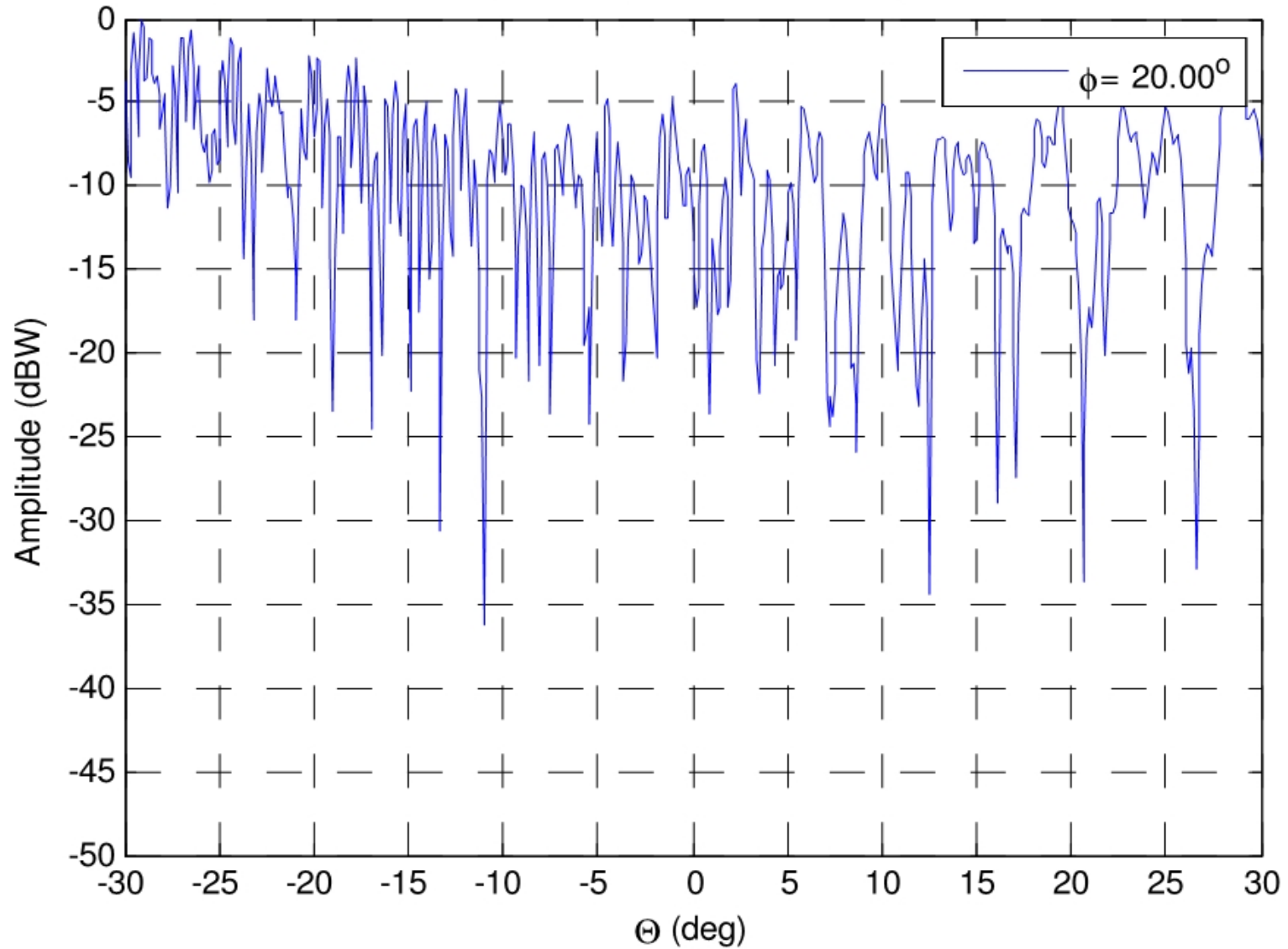
Normalized pattern cuts - farfield

Input file: tx-17.3-lhcp-10.cut, Peak: 3.31 dBW, Date: 06-Oct-2011



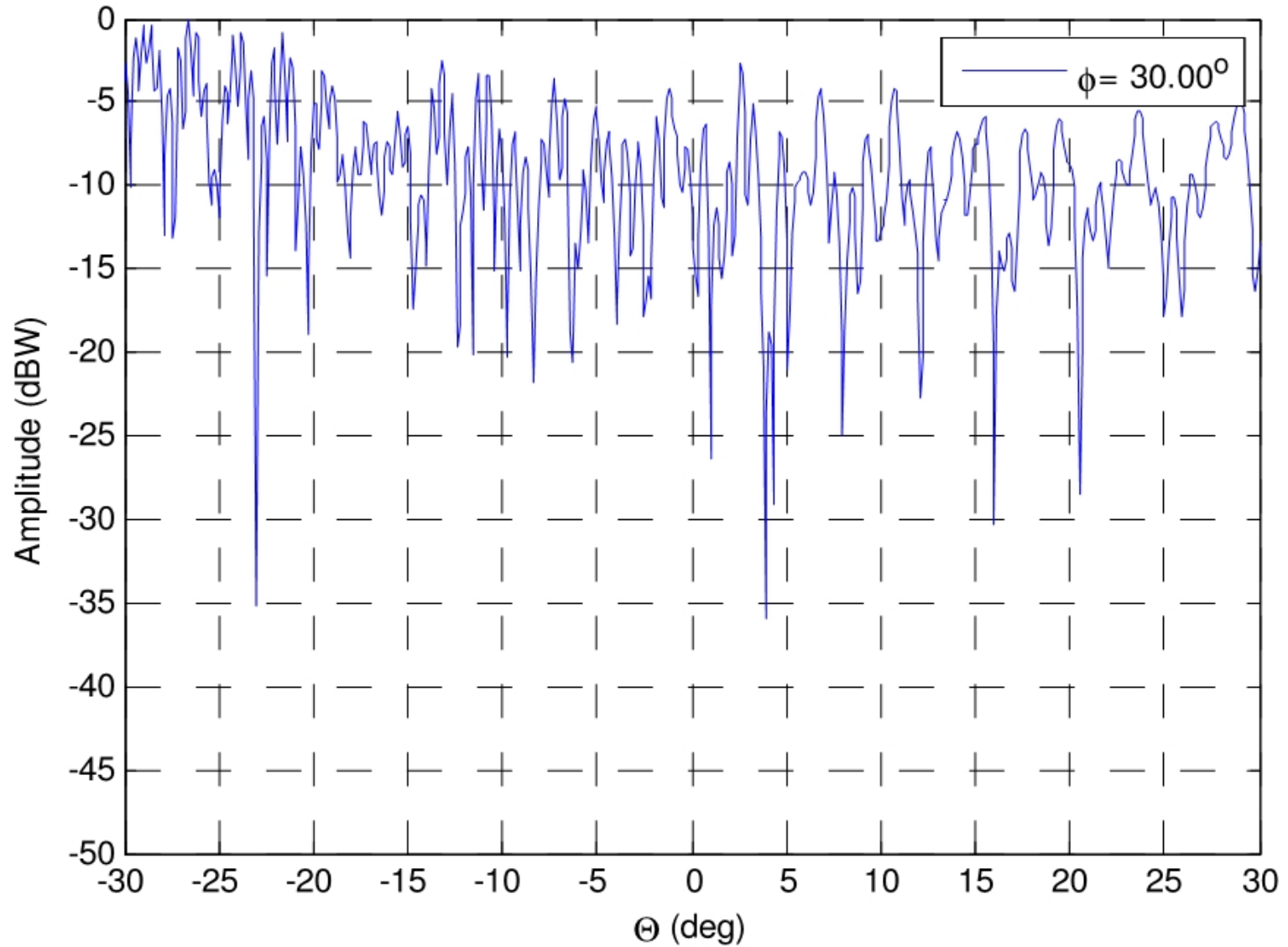
Normalized pattern cuts - farfield

Input file: tx-17.3-lhcp-20.cut, Peak: 2.65 dBW, Date: 06-Oct-2011



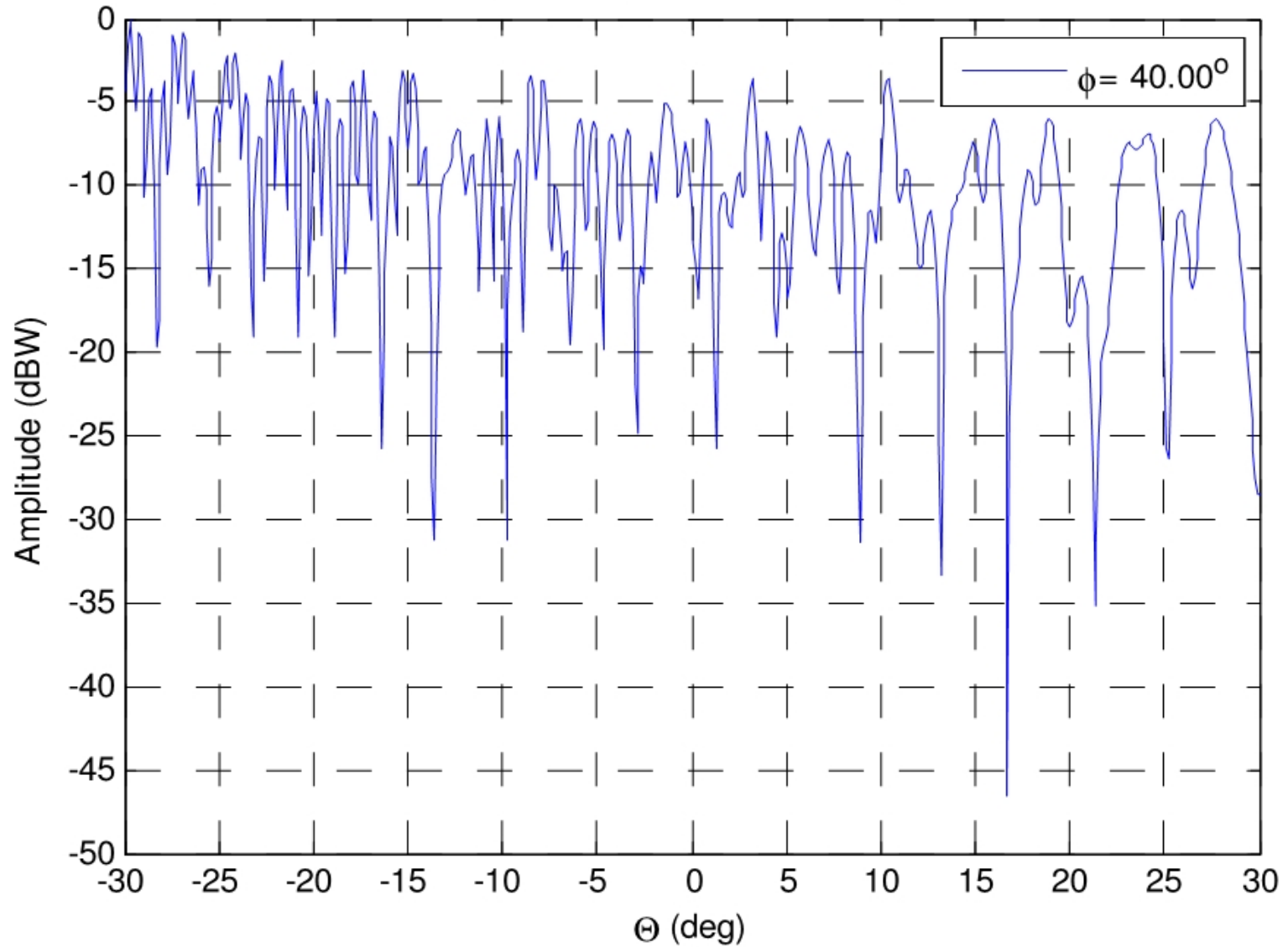
Normalized pattern cuts - farfield

Input file: tx-17.3-lhcp-30.cut, Peak: 1.62 dBW, Date: 06-Oct-2011



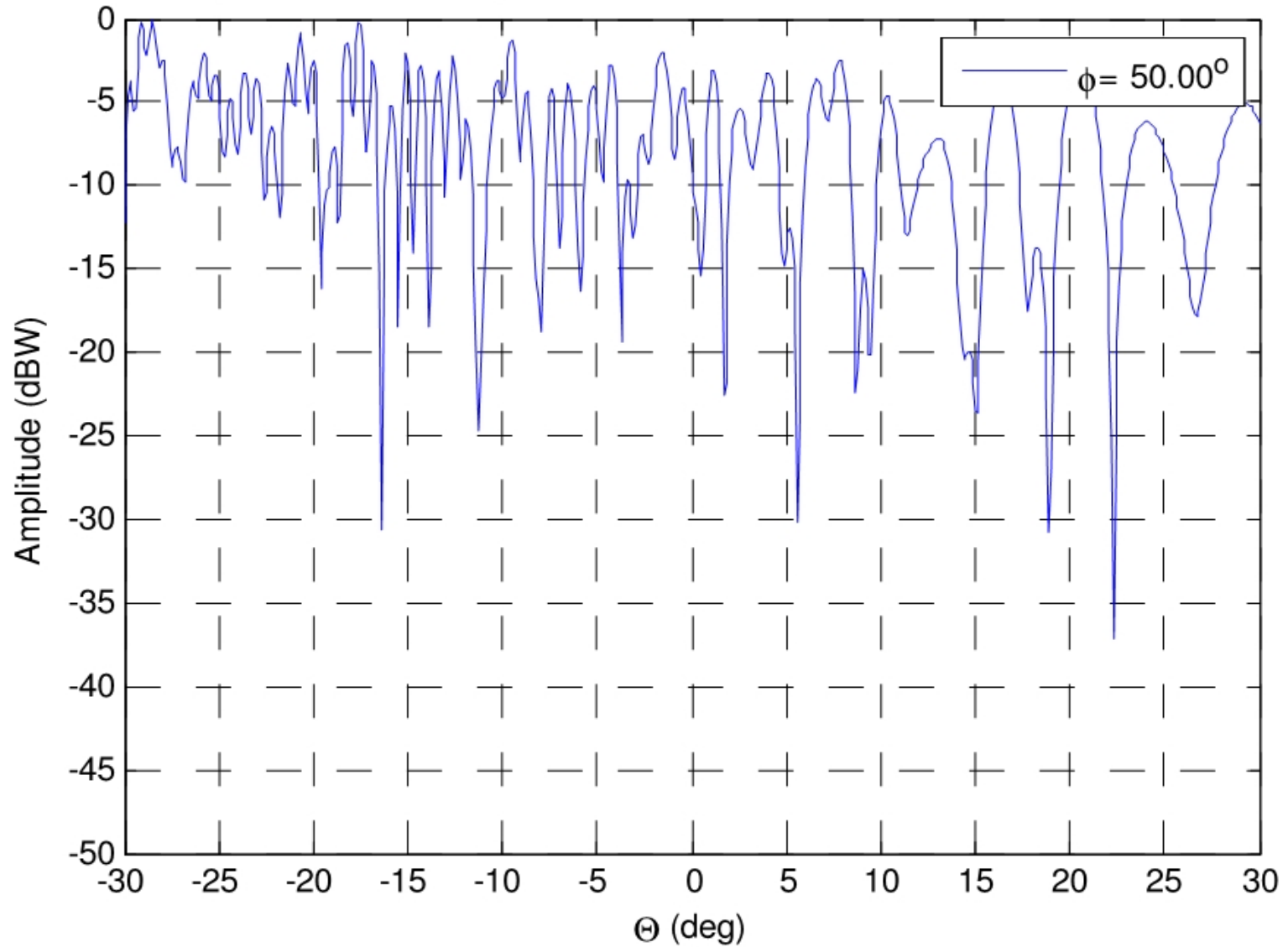
Normalized pattern cuts - farfield

Input file: tx-17.3-lhcp-40.cut, Peak: 1.72 dBW, Date: 06-Oct-2011



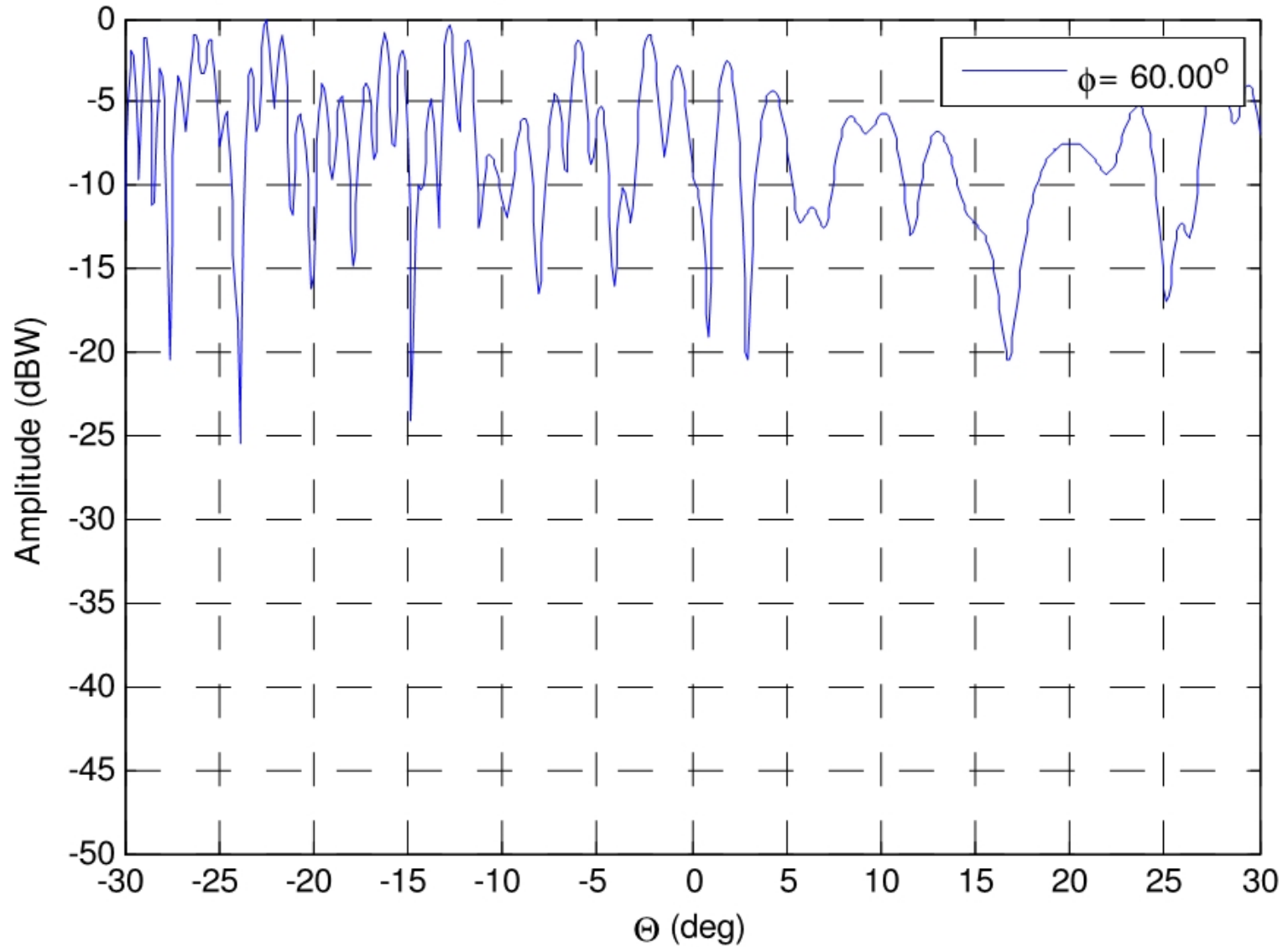
Normalized pattern cuts - farfield

Input file: tx-17.3-lhcp-50.cut, Peak: -0.93 dBW, Date: 06-Oct-2011



Normalized pattern cuts - farfield

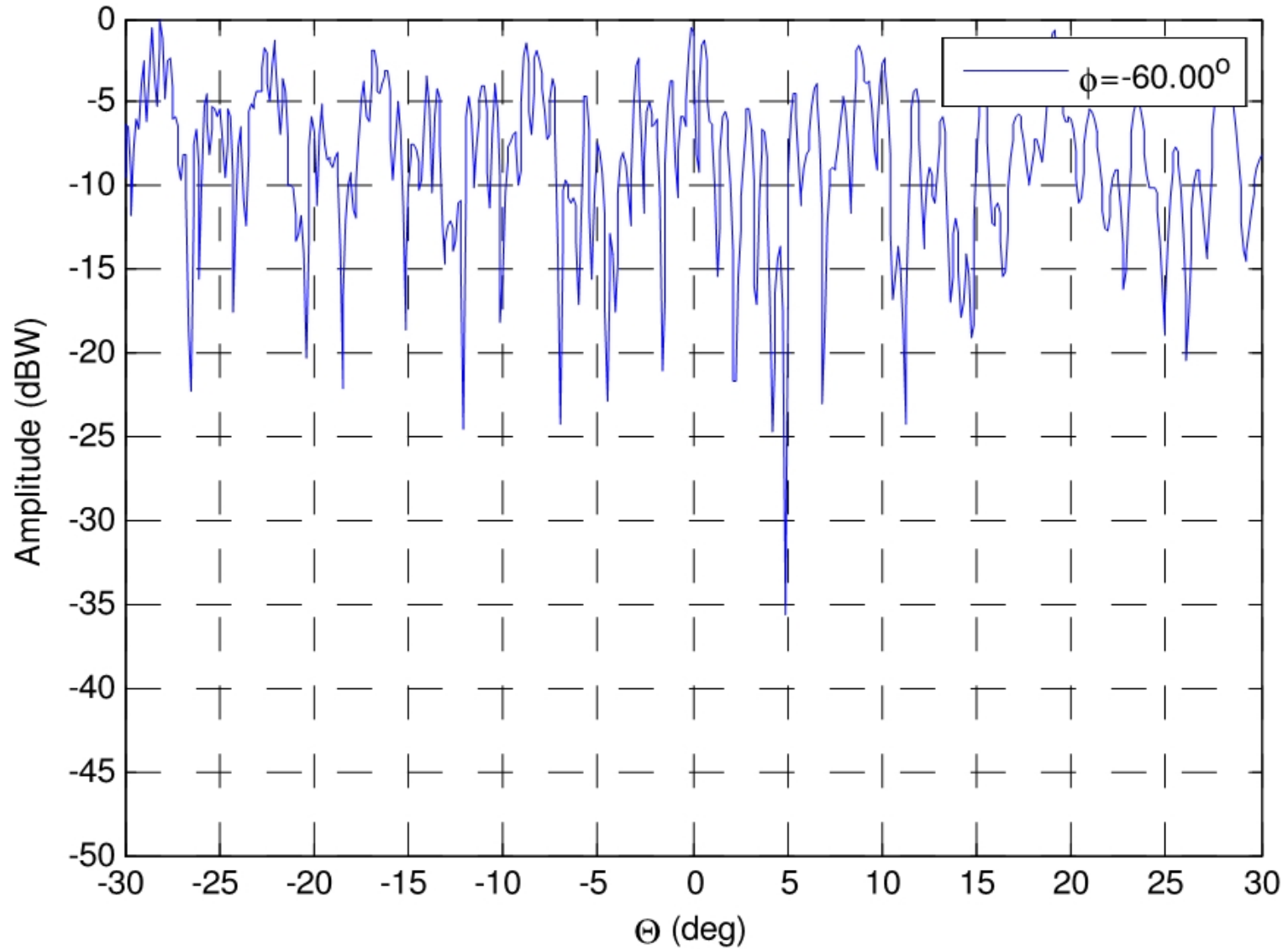
Input file: tx-17.3-lhcp-60.cut, Peak: -1.47 dBW, Date: 06-Oct-2011



RHCP at 17.5 GHz

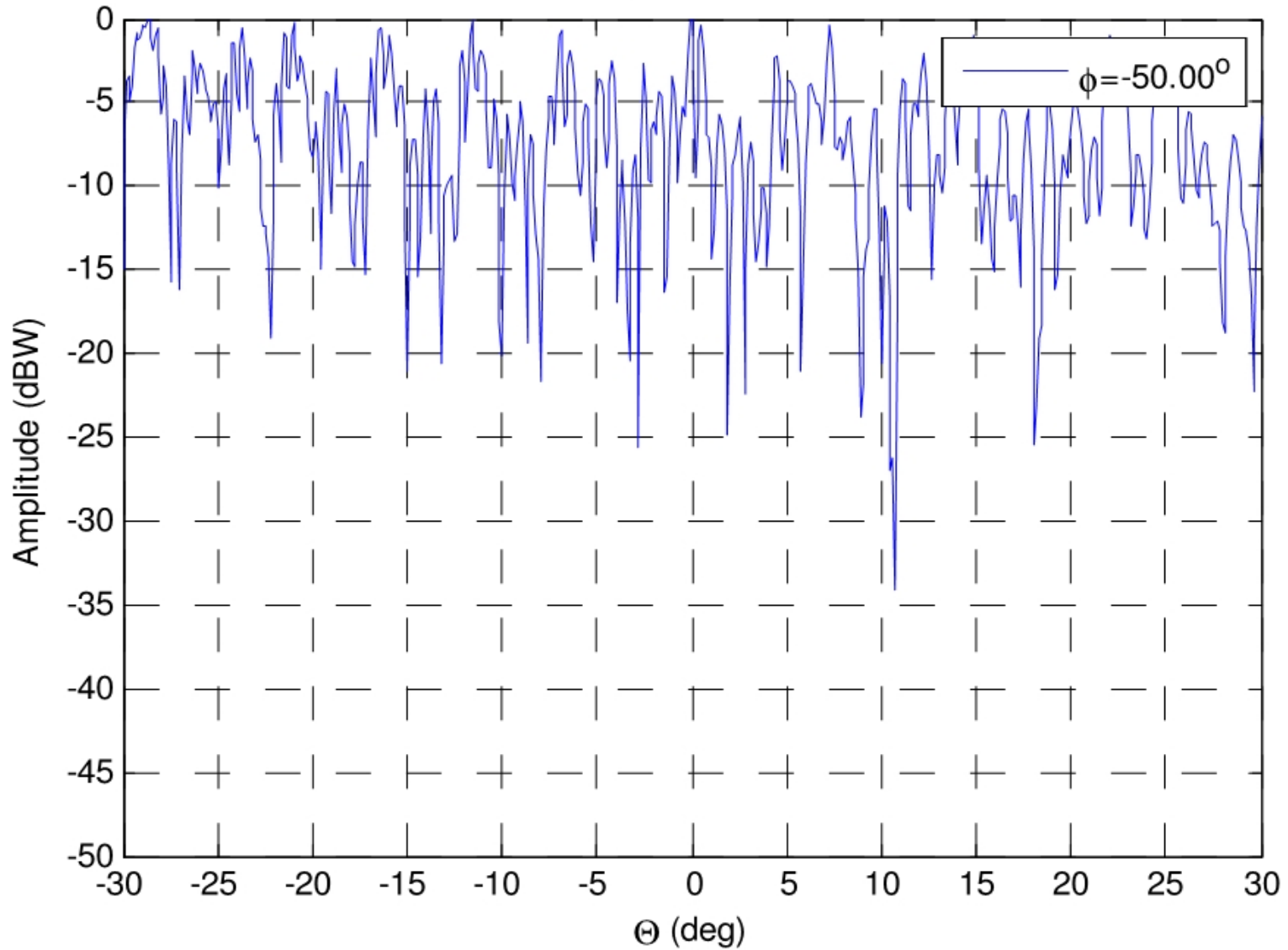
Normalized pattern cuts - farfield

Input file: tx-17.5-rhcp--60.cut, Peak: -1.18 dBW, Date: 06-Oct-2011



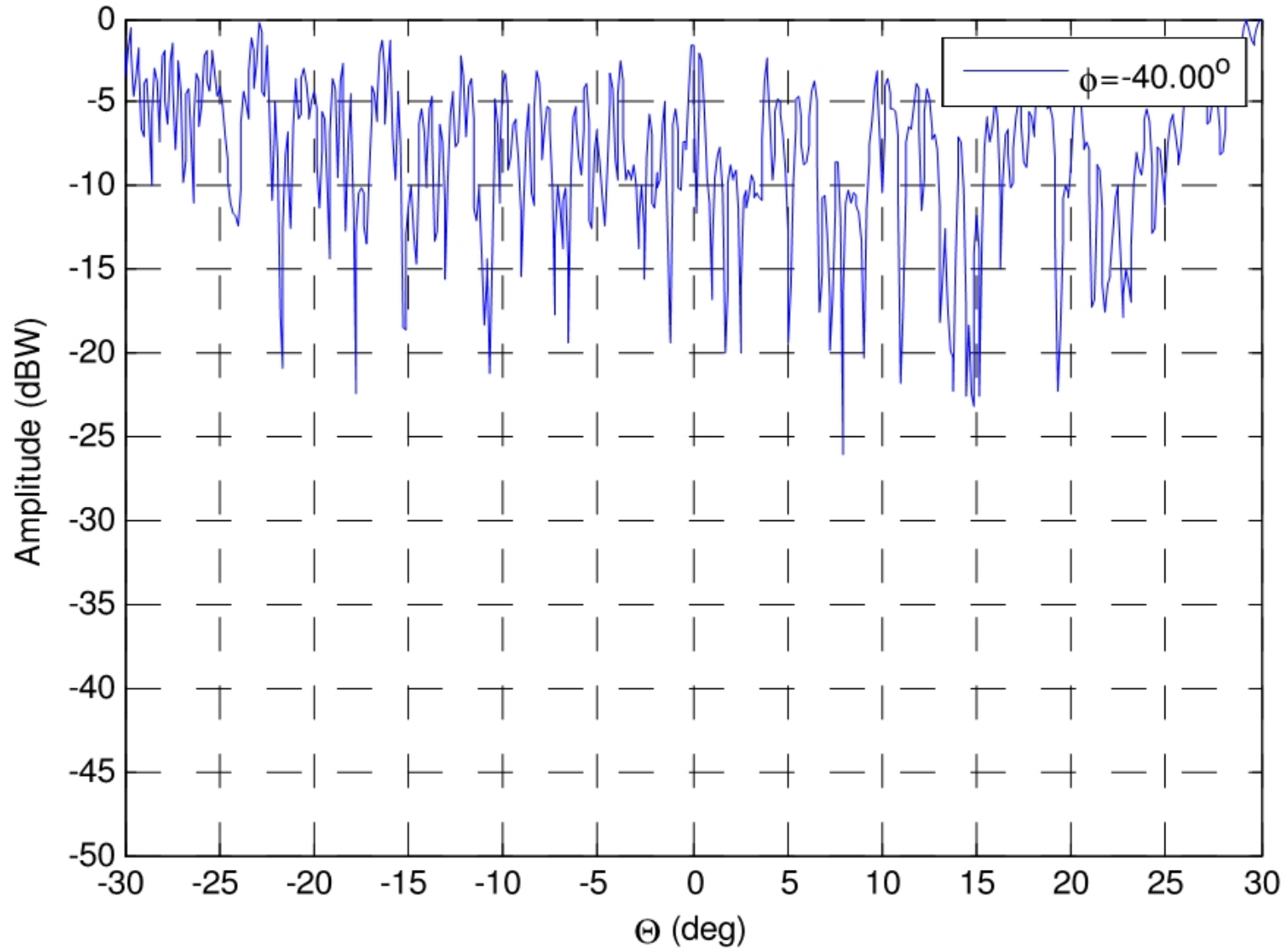
Normalized pattern cuts - farfield

Input file: tx-17.5-rhcp--50.cut, Peak: -1.87 dBW, Date: 06-Oct-2011



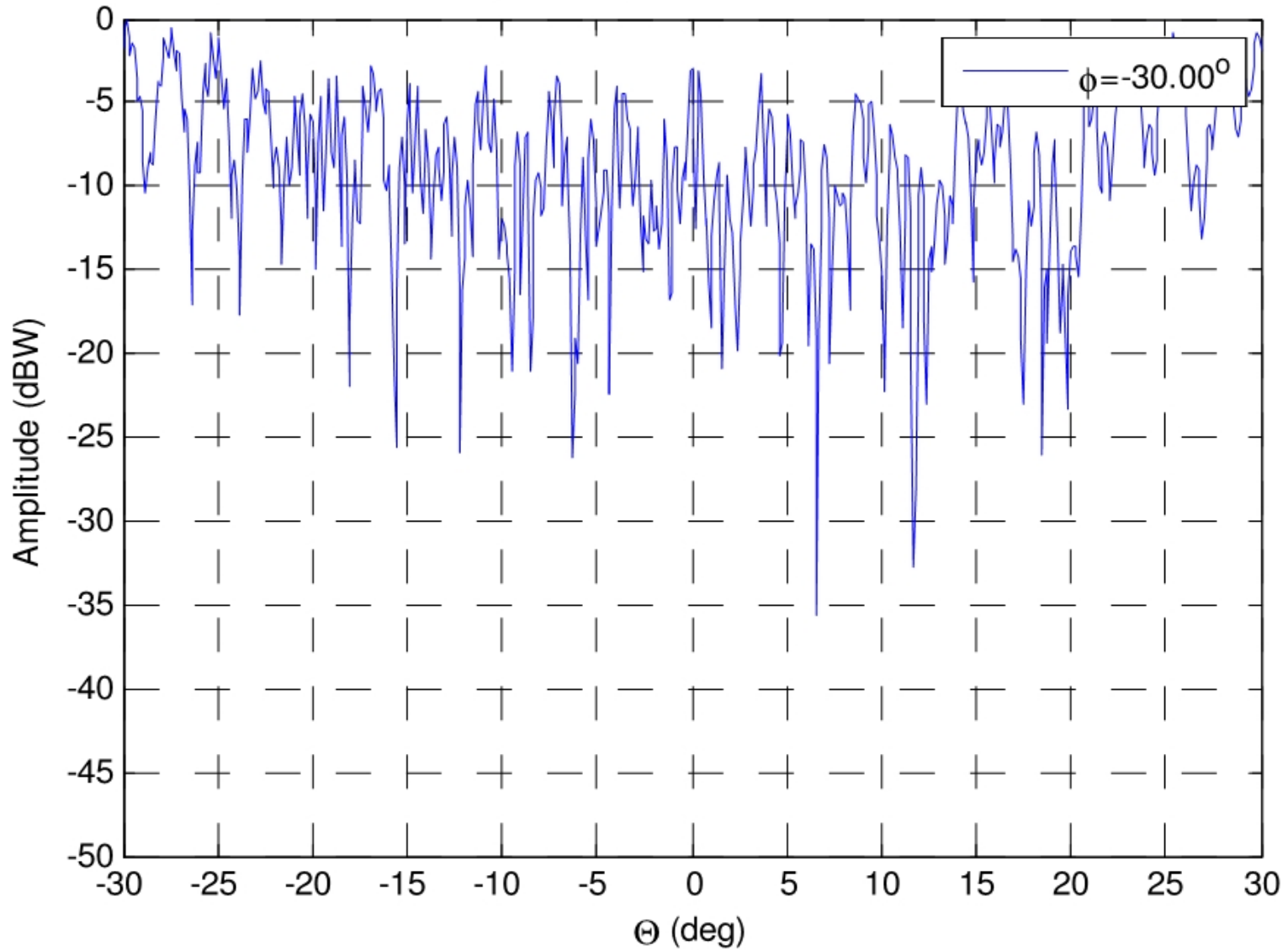
Normalized pattern cuts - farfield

Input file: tx-17.5-rhcp--40.cut, Peak: -0.37 dBW, Date: 06-Oct-2011



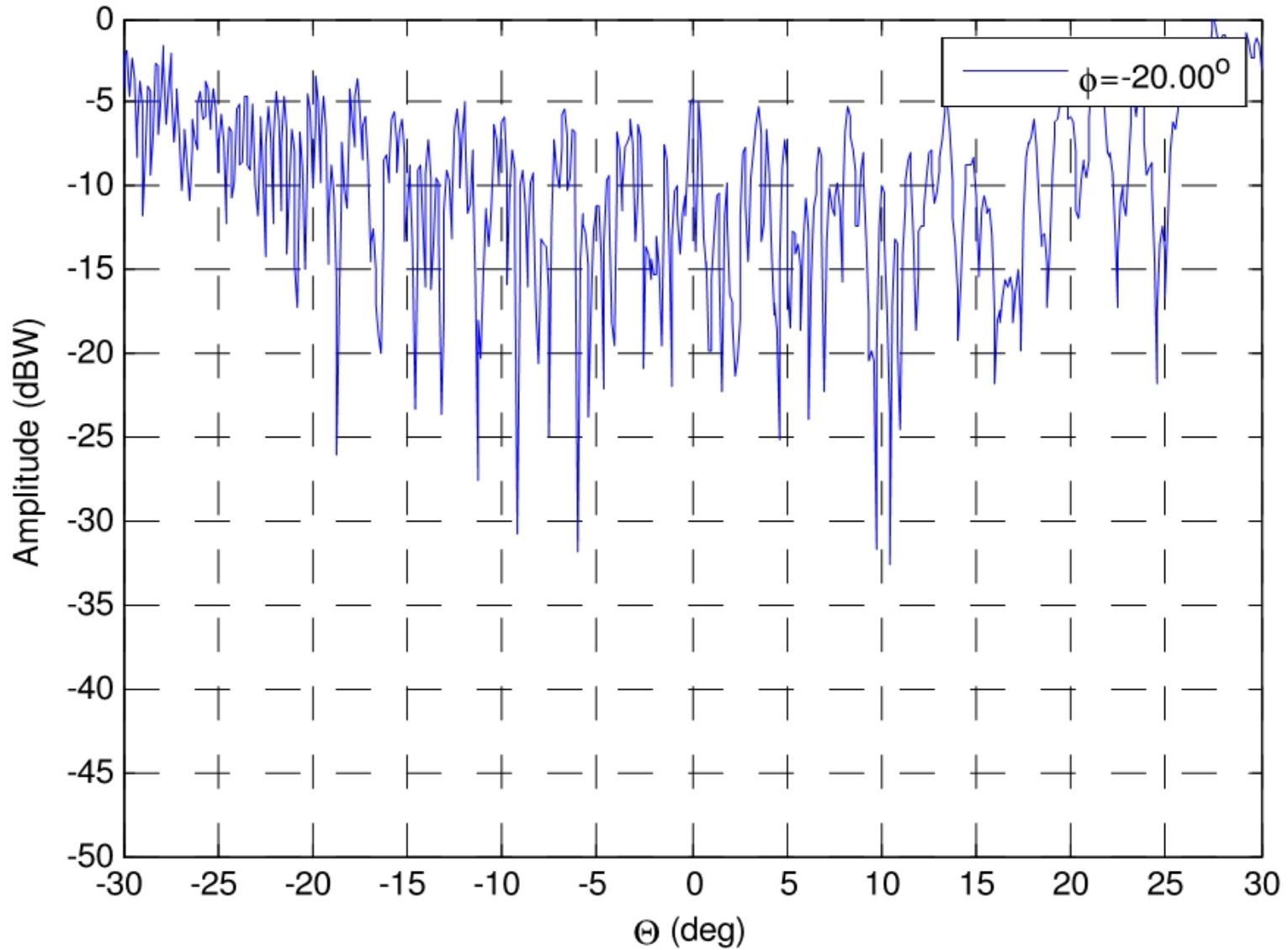
Normalized pattern cuts - farfield

Input file: tx-17.5-rhcp--30.cut, Peak: 0.98 dBW, Date: 06-Oct-2011



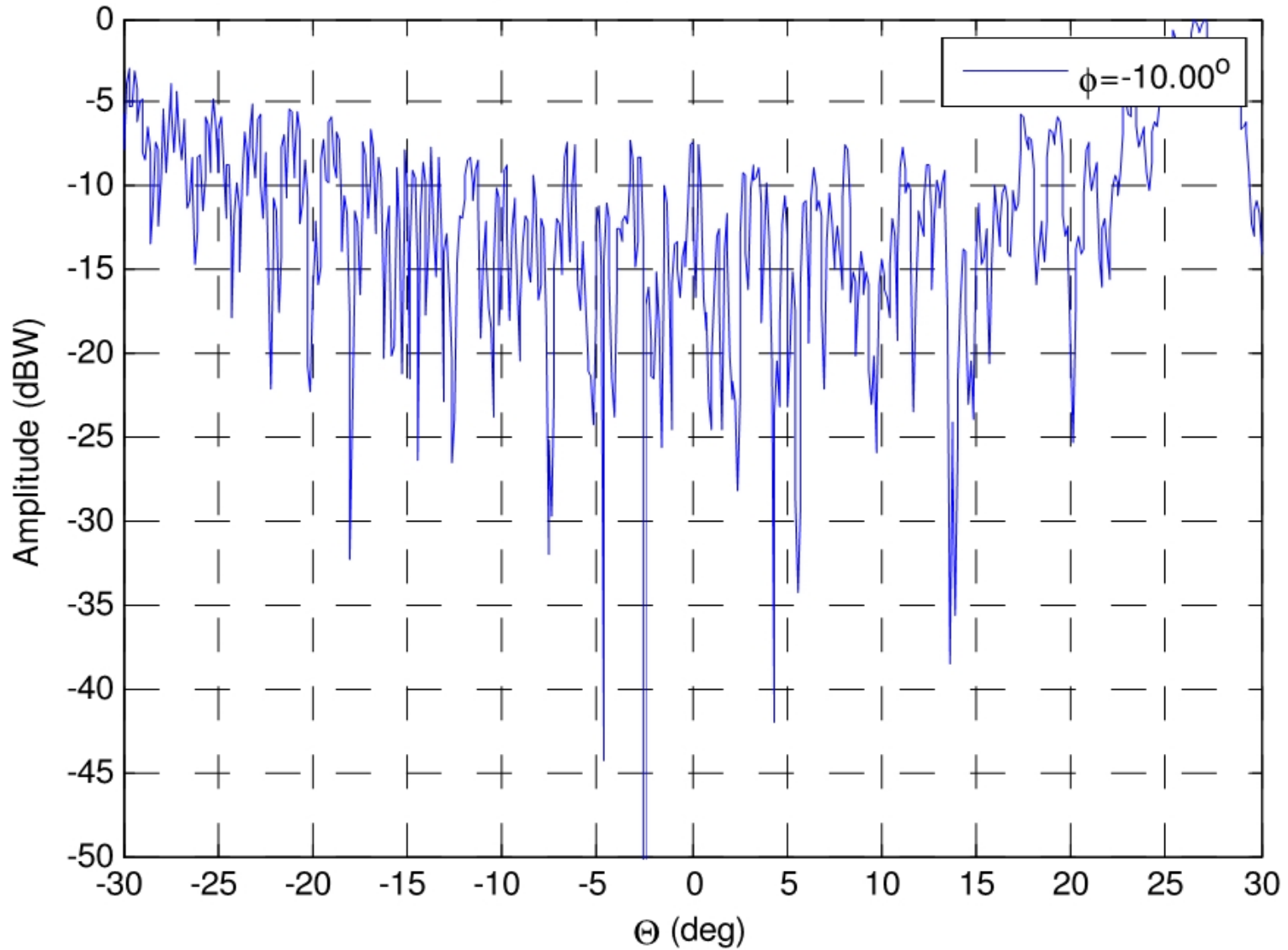
Normalized pattern cuts - farfield

Input file: tx-17.5-rhcp--20.cut, Peak: 2.76 dBW, Date: 06-Oct-2011



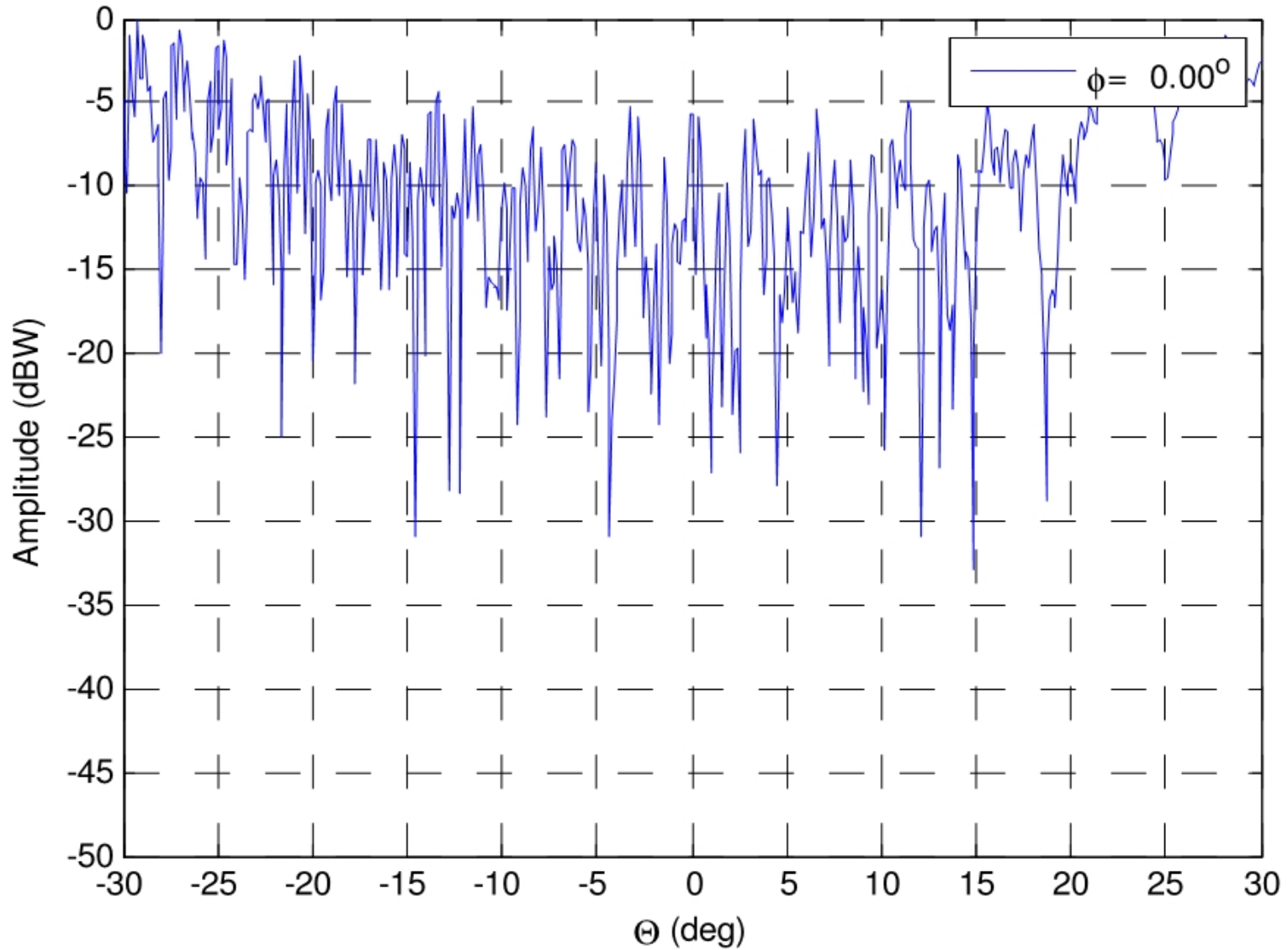
Normalized pattern cuts - farfield

Input file: tx-17.5-rhcp--10.cut, Peak: 5.38 dBW, Date: 06-Oct-2011



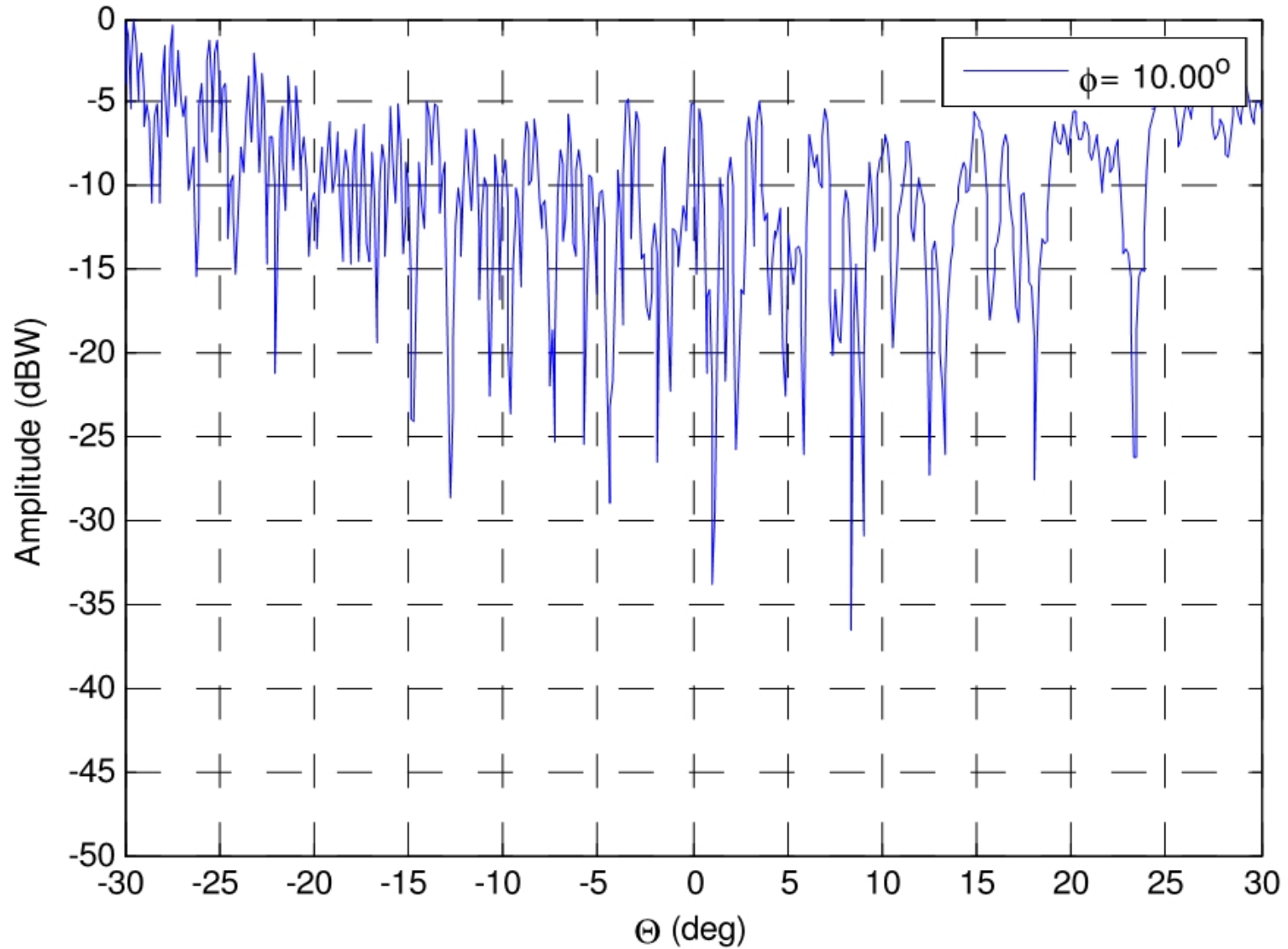
Normalized pattern cuts - farfield

Input file: tx-17.5-rhcp-0.cut, Peak: 3.70 dBW, Date: 06-Oct-2011



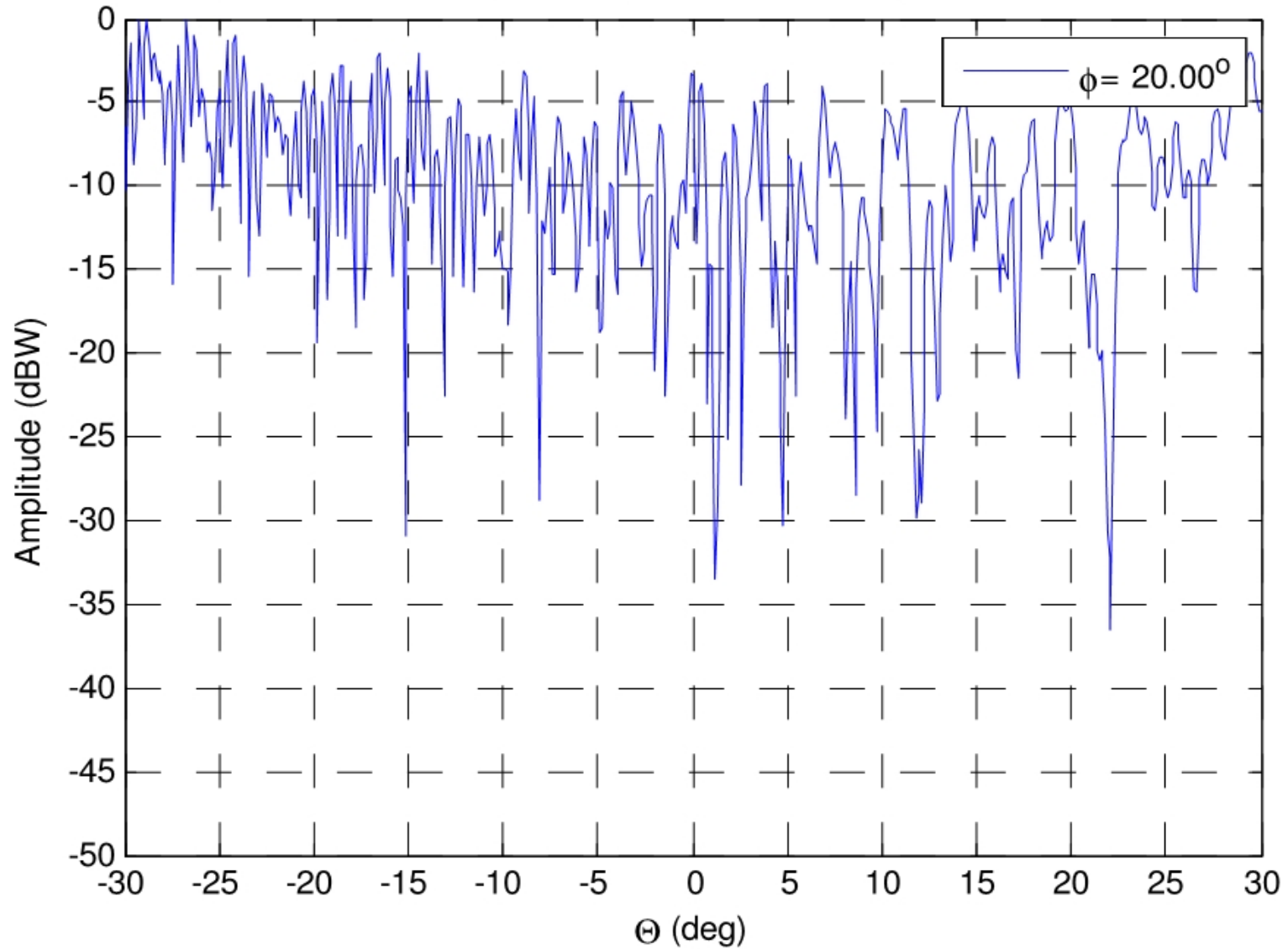
Normalized pattern cuts - farfield

Input file: tx-17.5-rhcp-10.cut, Peak: 3.10 dBW, Date: 06-Oct-2011



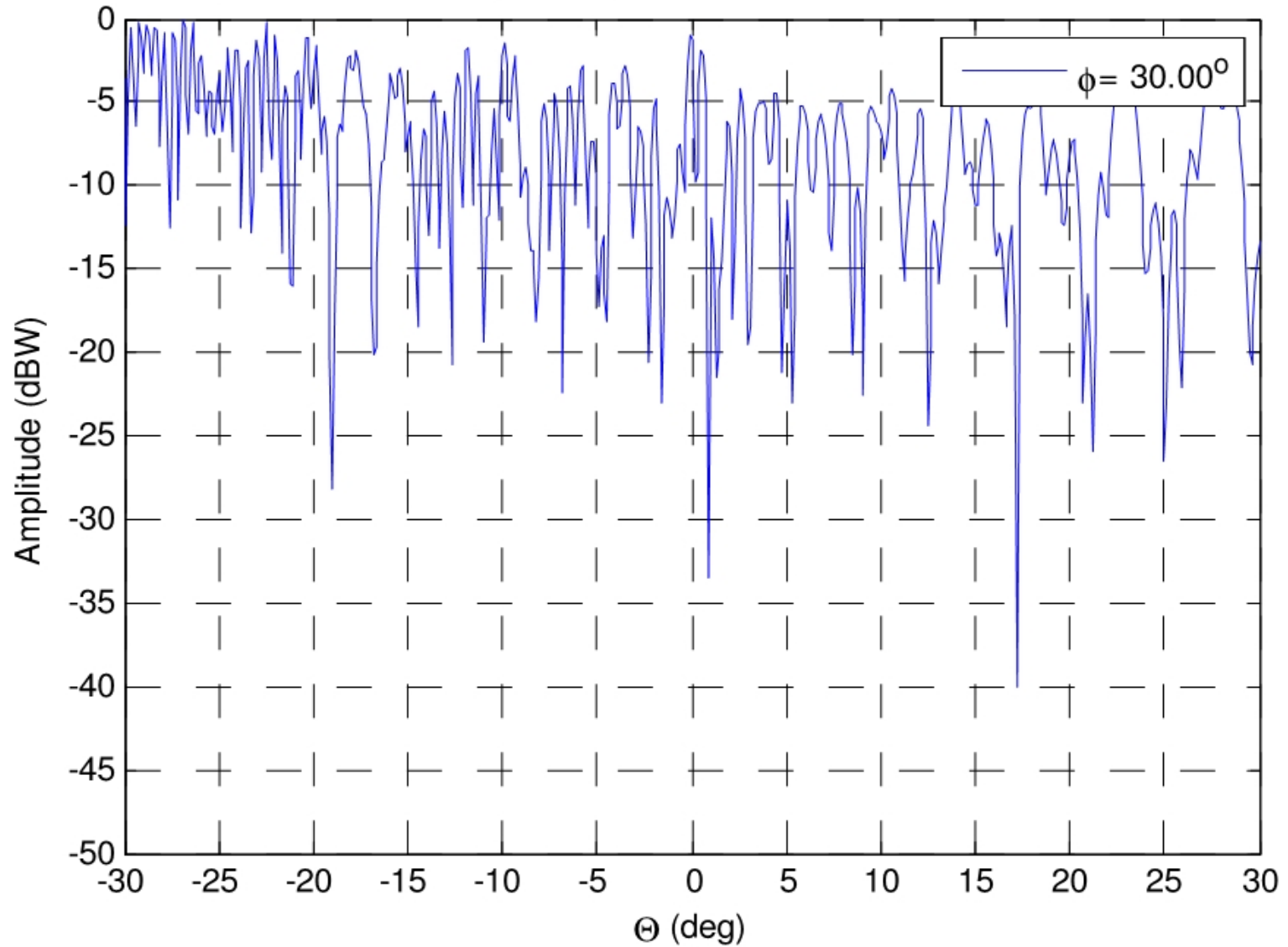
Normalized pattern cuts - farfield

Input file: tx-17.5-rhcp-20.cut, Peak: 1.46 dBW, Date: 06-Oct-2011



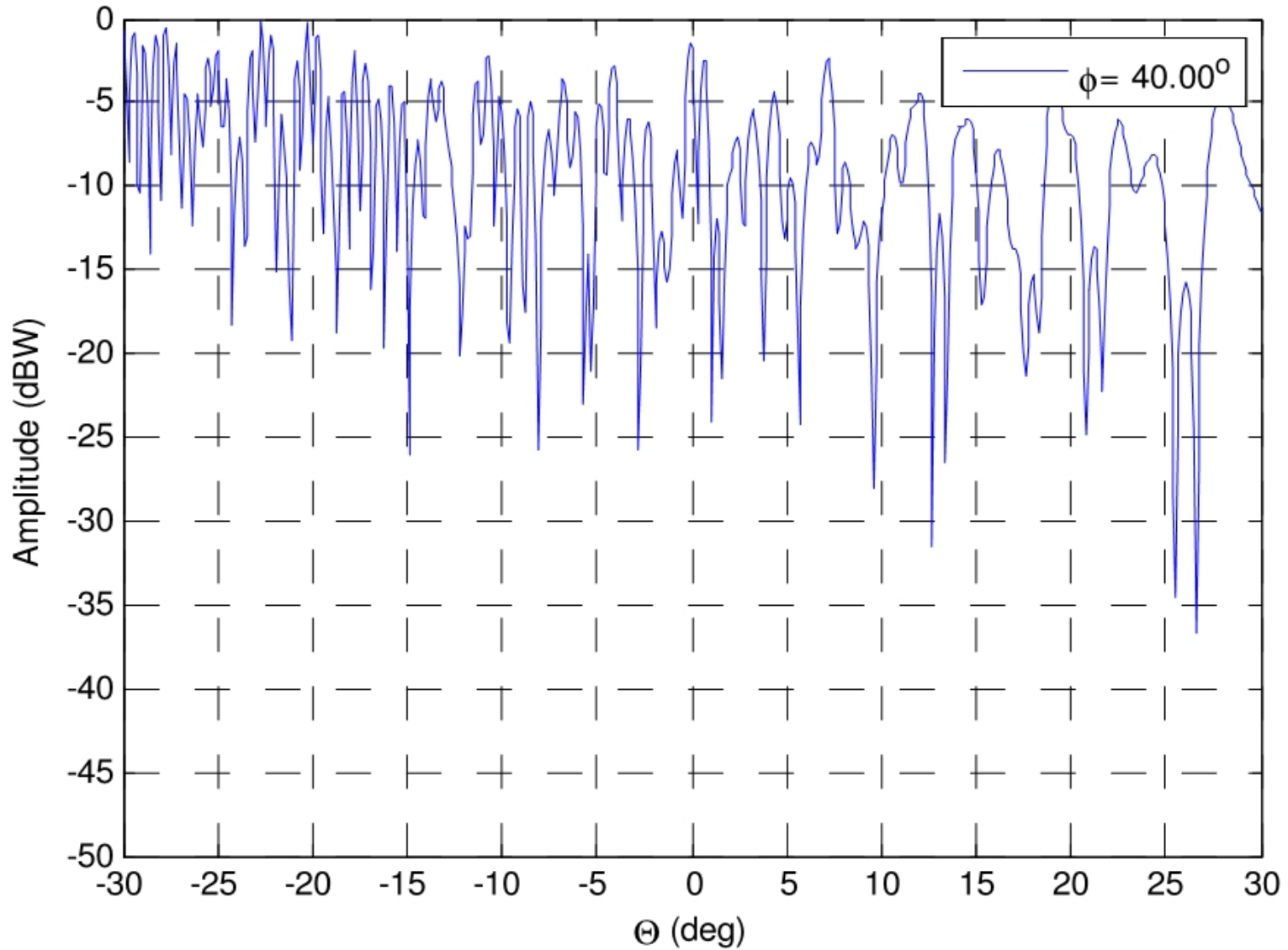
Normalized pattern cuts - farfield

Input file: tx-17.5-rhcp-30.cut, Peak: -0.63 dBW, Date: 06-Oct-2011



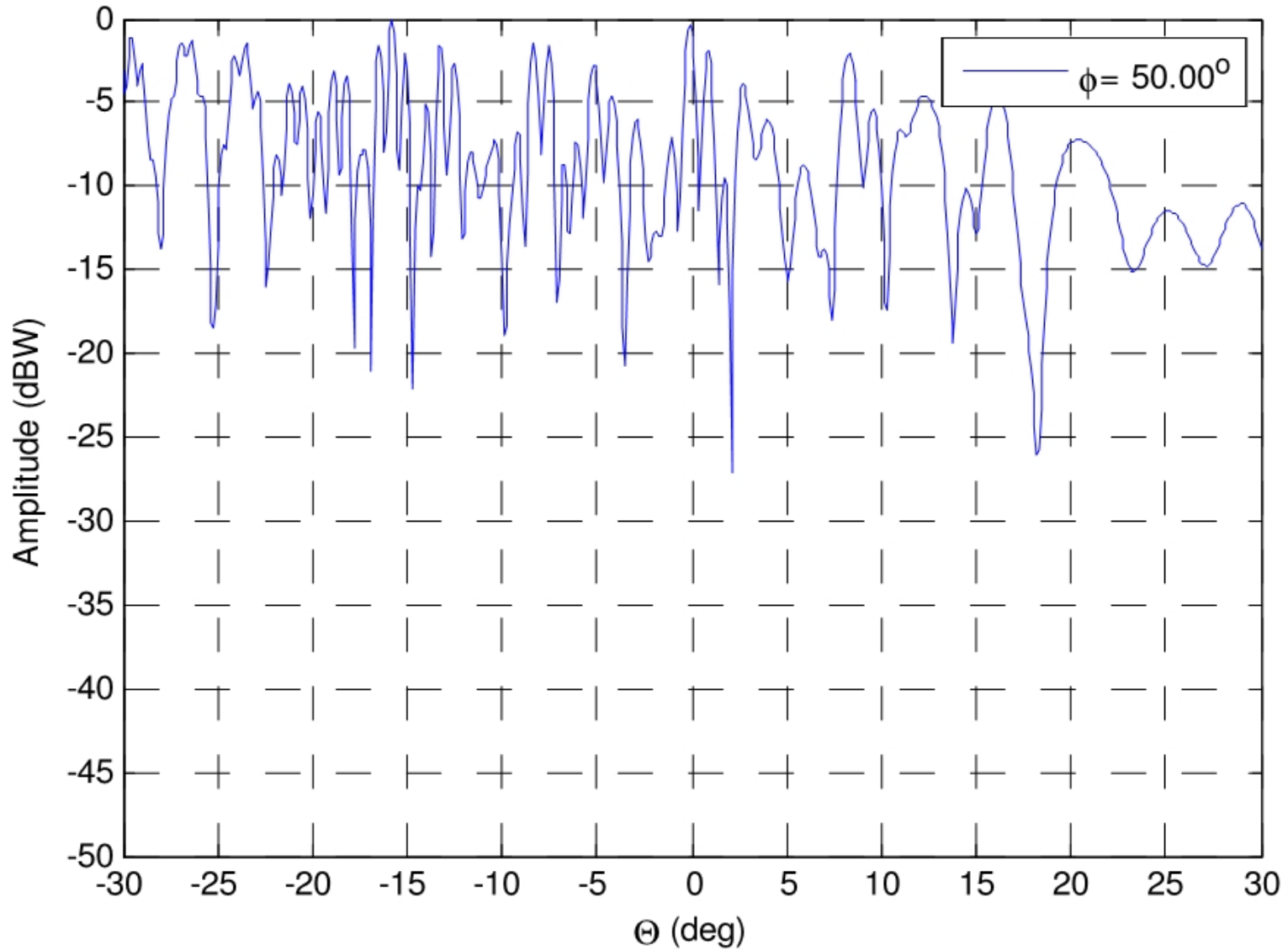
Normalized pattern cuts - farfield

Input file: tx-17.5-rhcp-40.cut, Peak: -0.18 dBW, Date: 06-Oct-2011



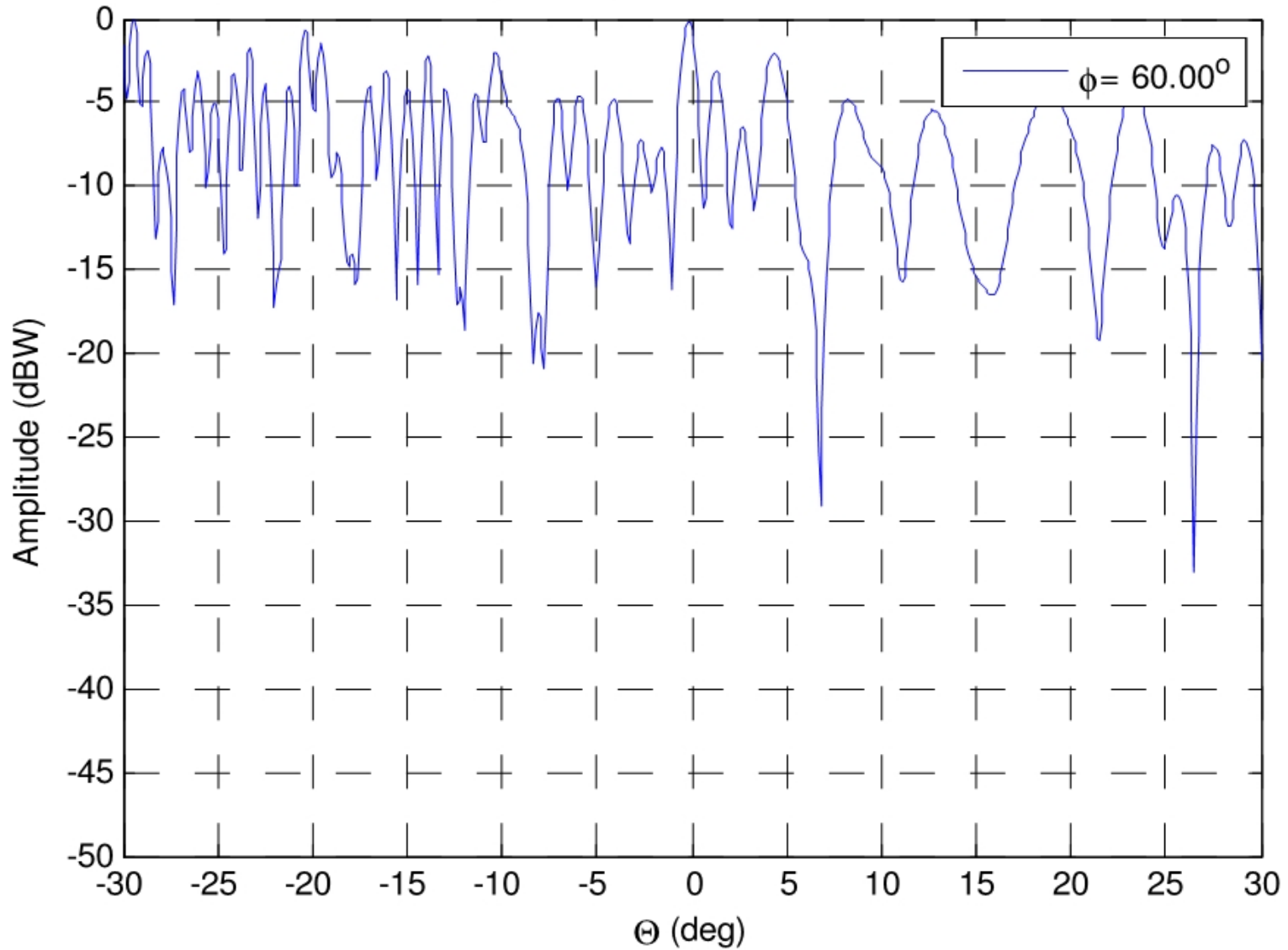
Normalized pattern cuts - farfield

Input file: tx-17.5-rhcp-50.cut, Peak: -1.06 dBW, Date: 06-Oct-2011



Normalized pattern cuts - farfield

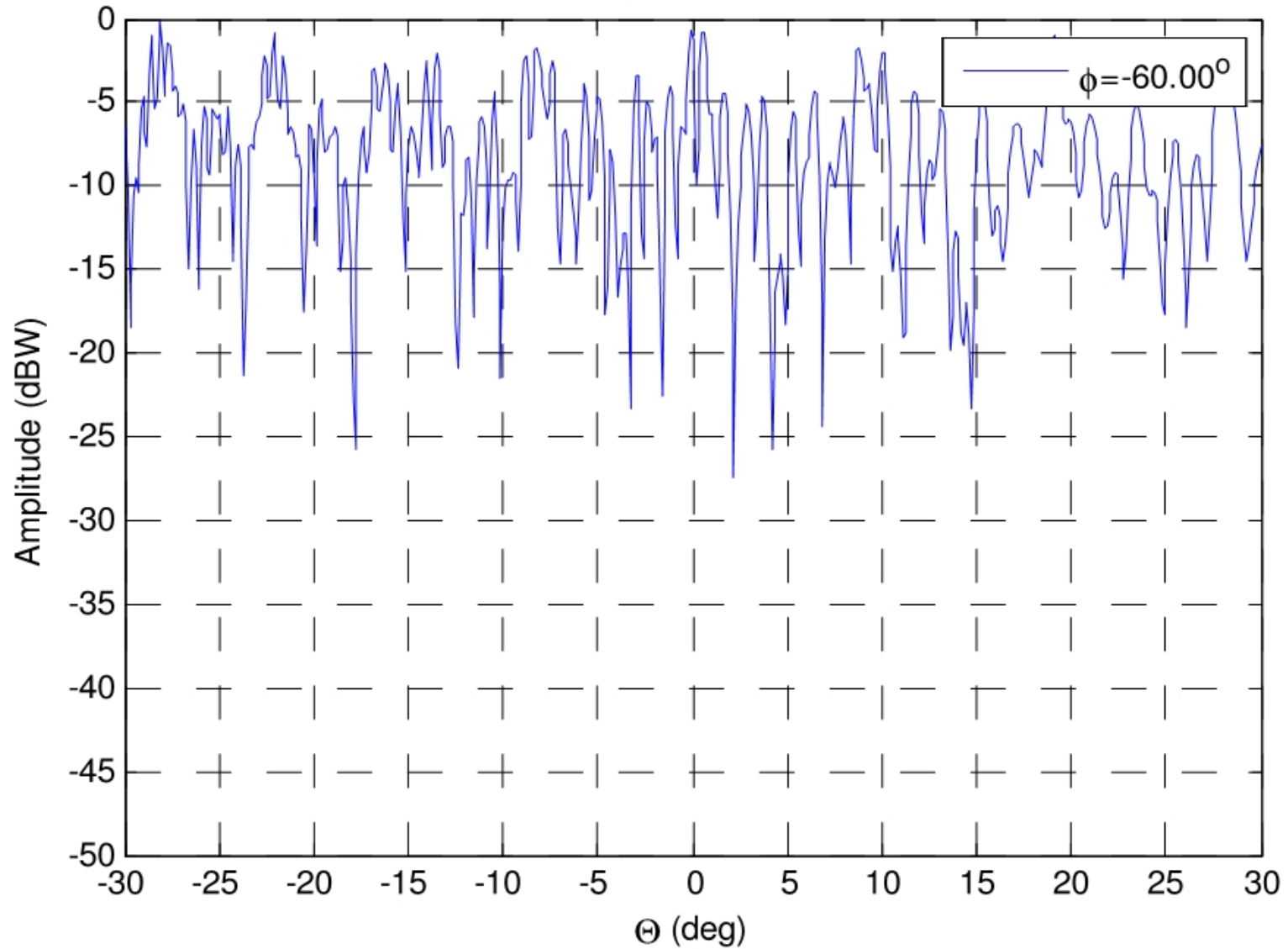
Input file: tx-17.5-rhcp-60.cut, Peak: -1.26 dBW, Date: 06-Oct-2011



LHCP at 17.5 GHz

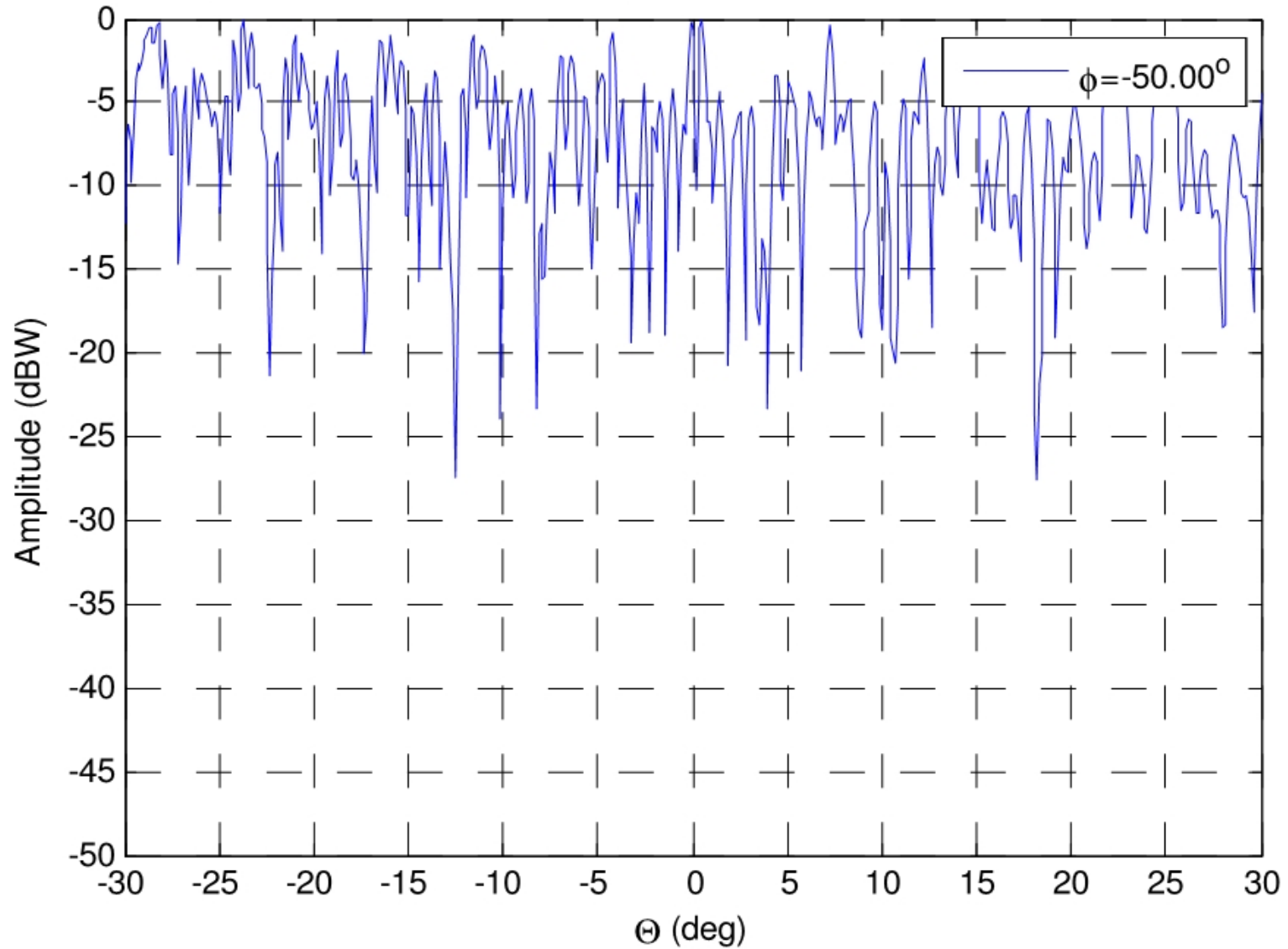
Normalized pattern cuts - farfield

Input file: tx-17.5-lhcp--60.cut, Peak: -1.12 dBW, Date: 06-Oct-2011



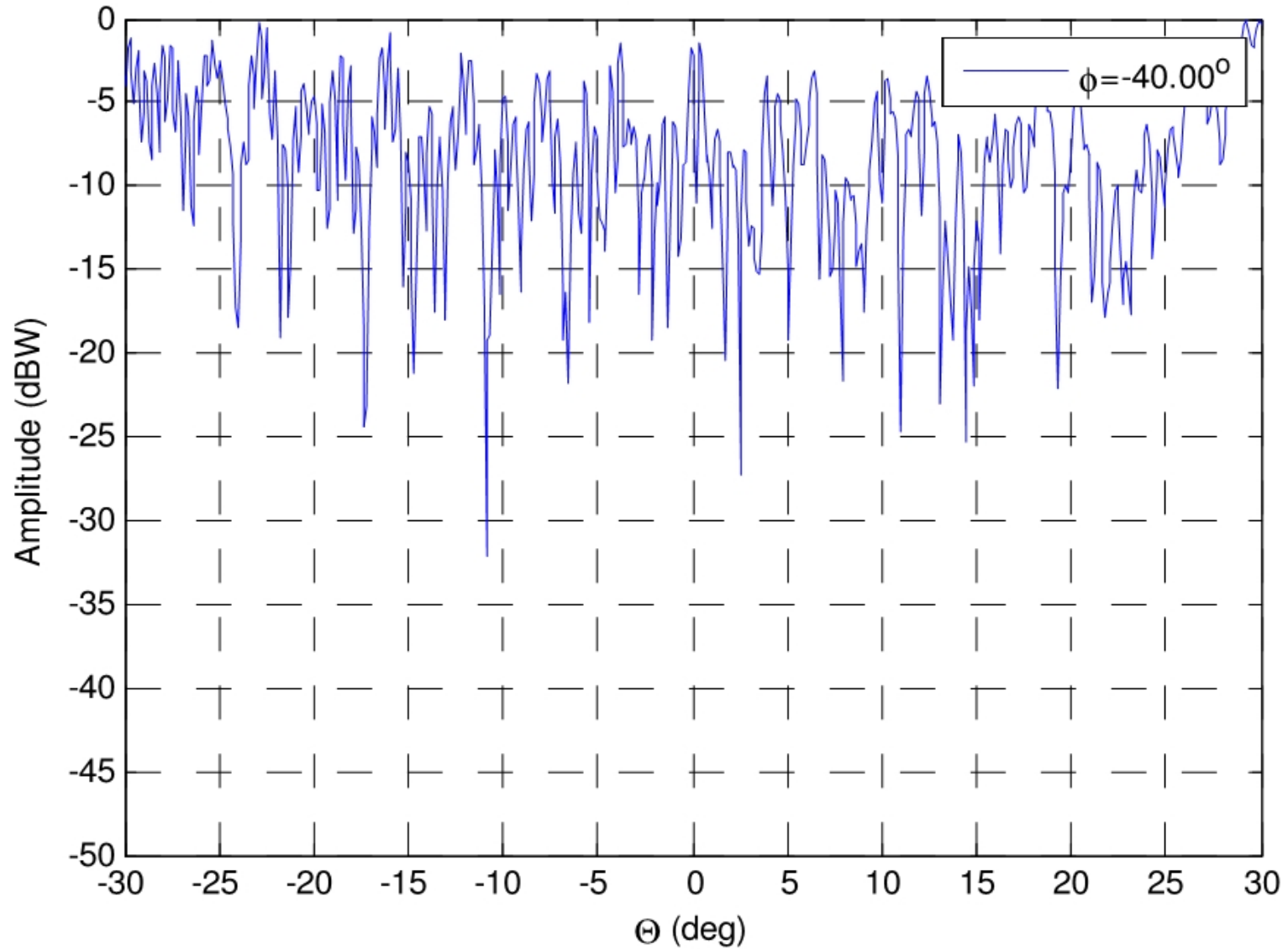
Normalized pattern cuts - farfield

Input file: tx-17.5-lhcp--50.cut, Peak: -1.74 dBW, Date: 06-Oct-2011



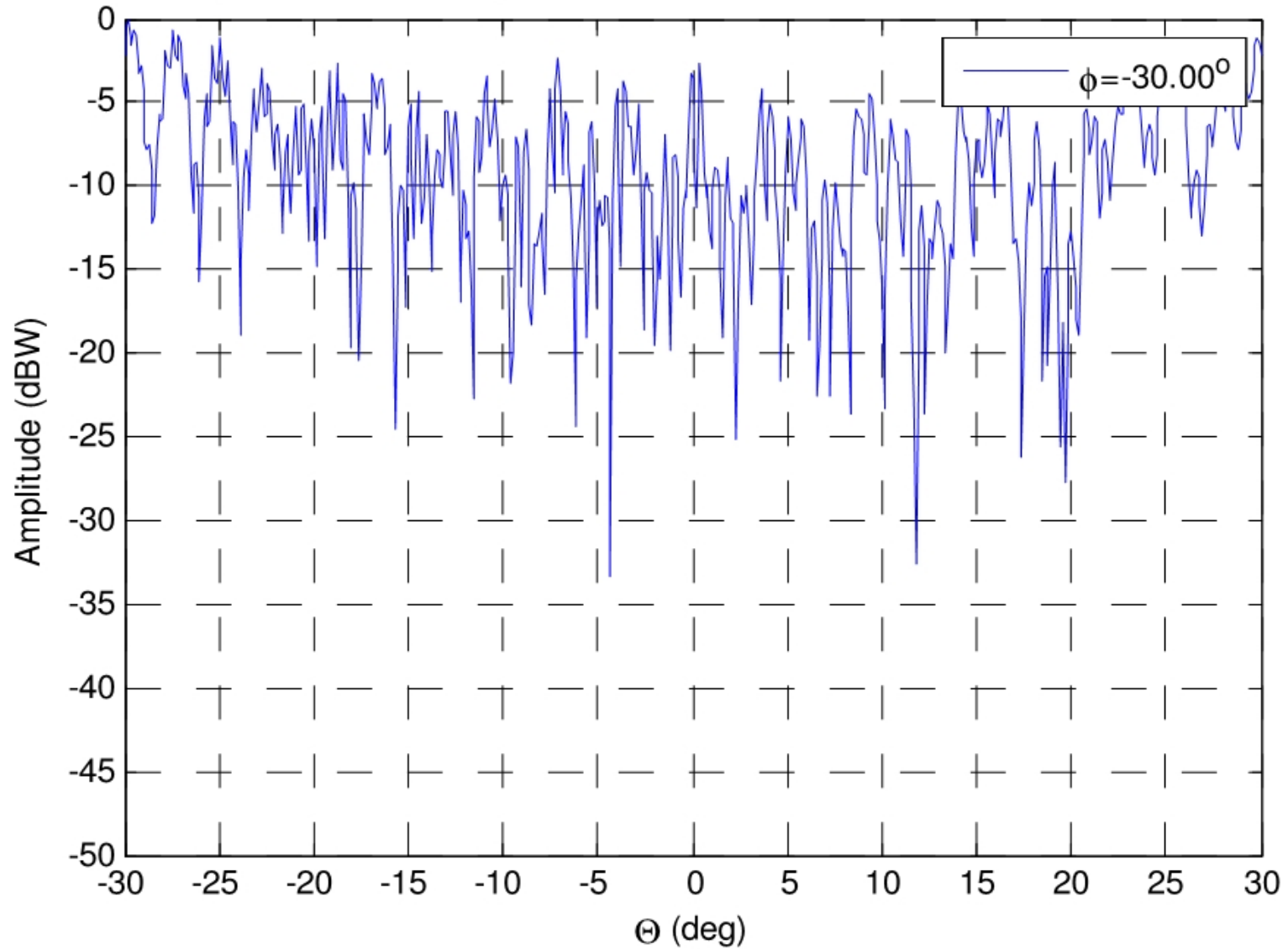
Normalized pattern cuts - farfield

Input file: tx-17.5-lhcp--40.cut, Peak: -0.25 dBW, Date: 06-Oct-2011



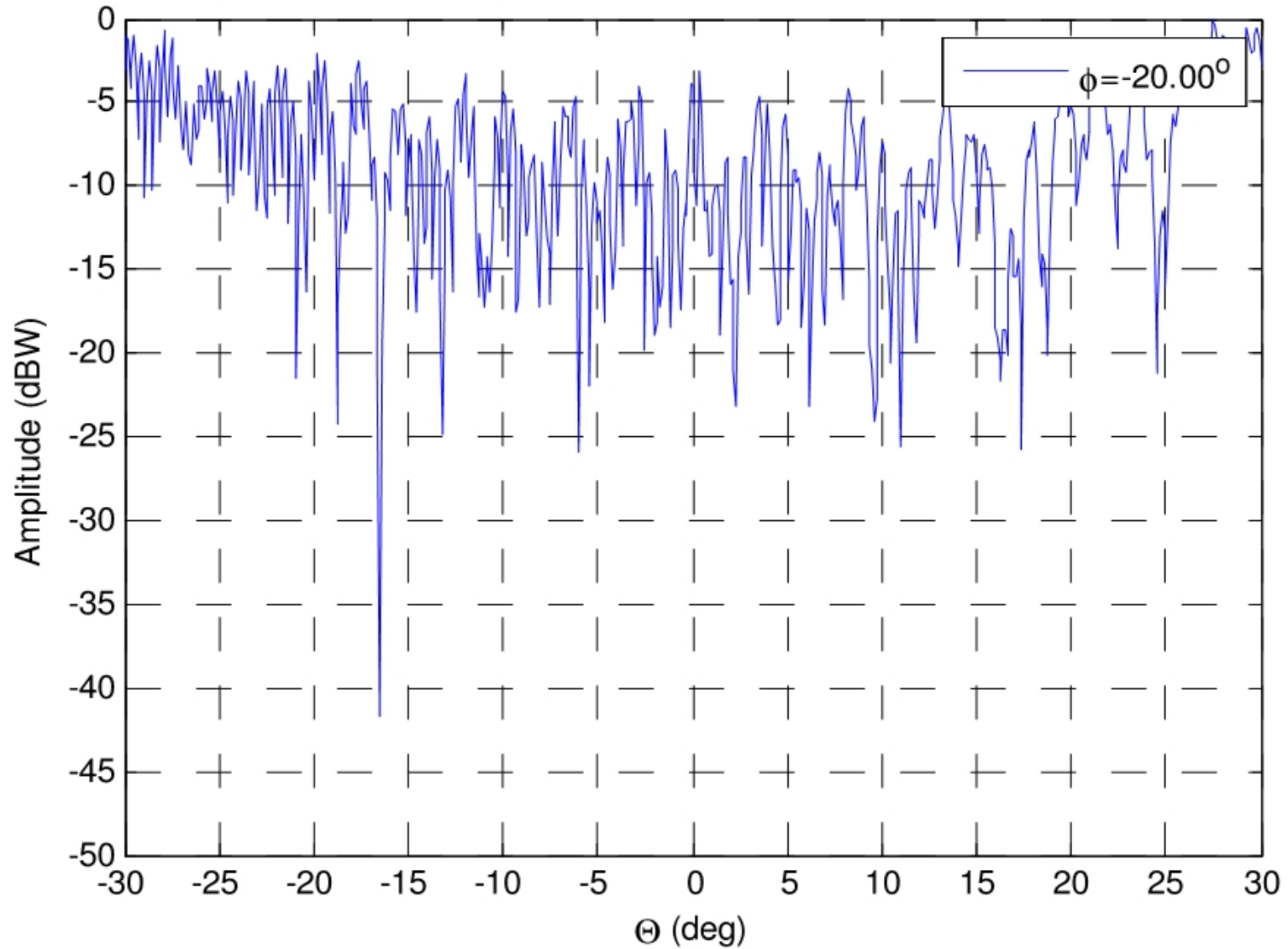
Normalized pattern cuts - farfield

Input file: tx-17.5-lhcp--30.cut, Peak: 1.19 dBW, Date: 06-Oct-2011



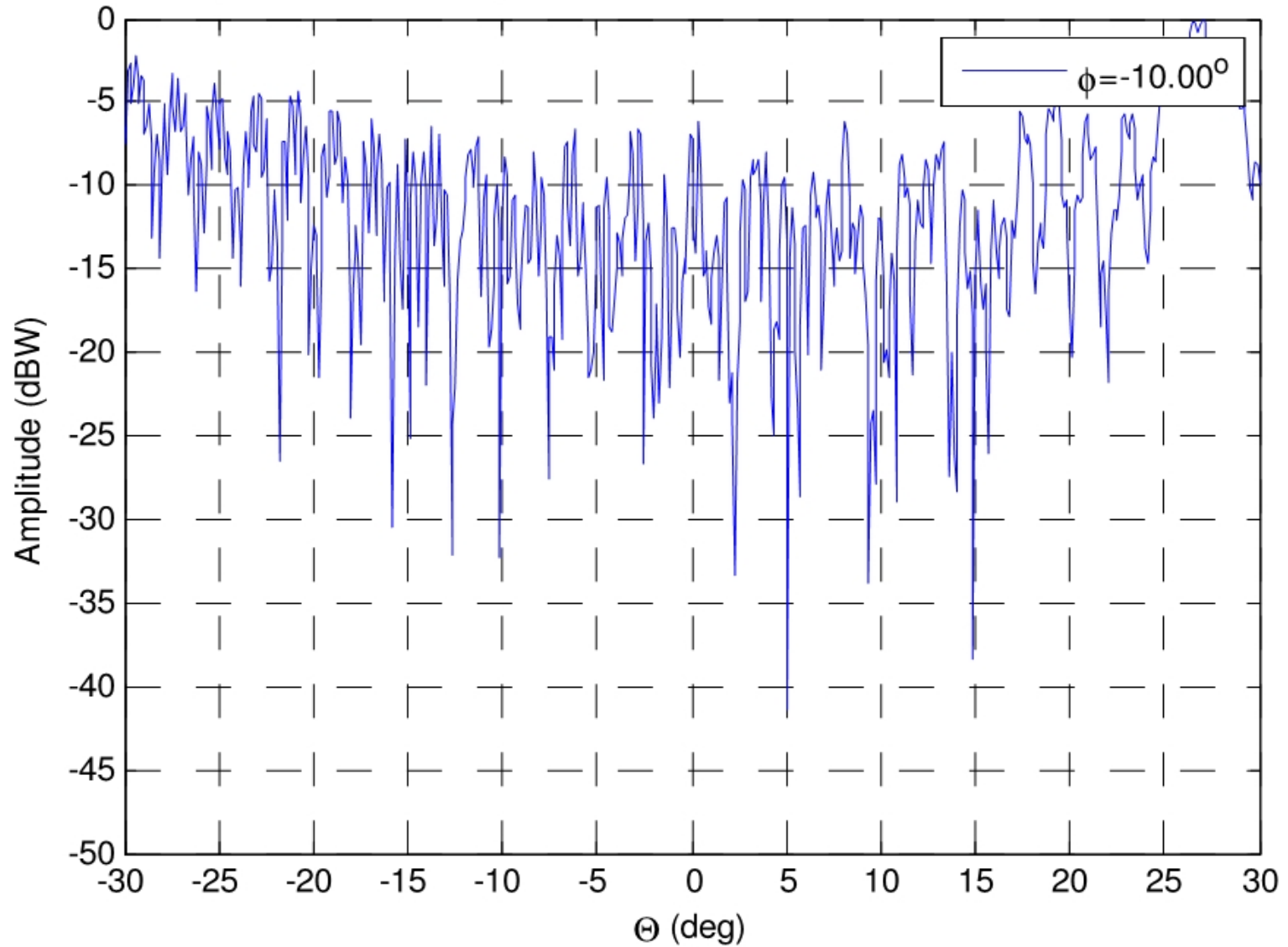
Normalized pattern cuts - farfield

Input file: tx-17.5-lhcp--20.cut, Peak: 1.68 dBW, Date: 06-Oct-2011



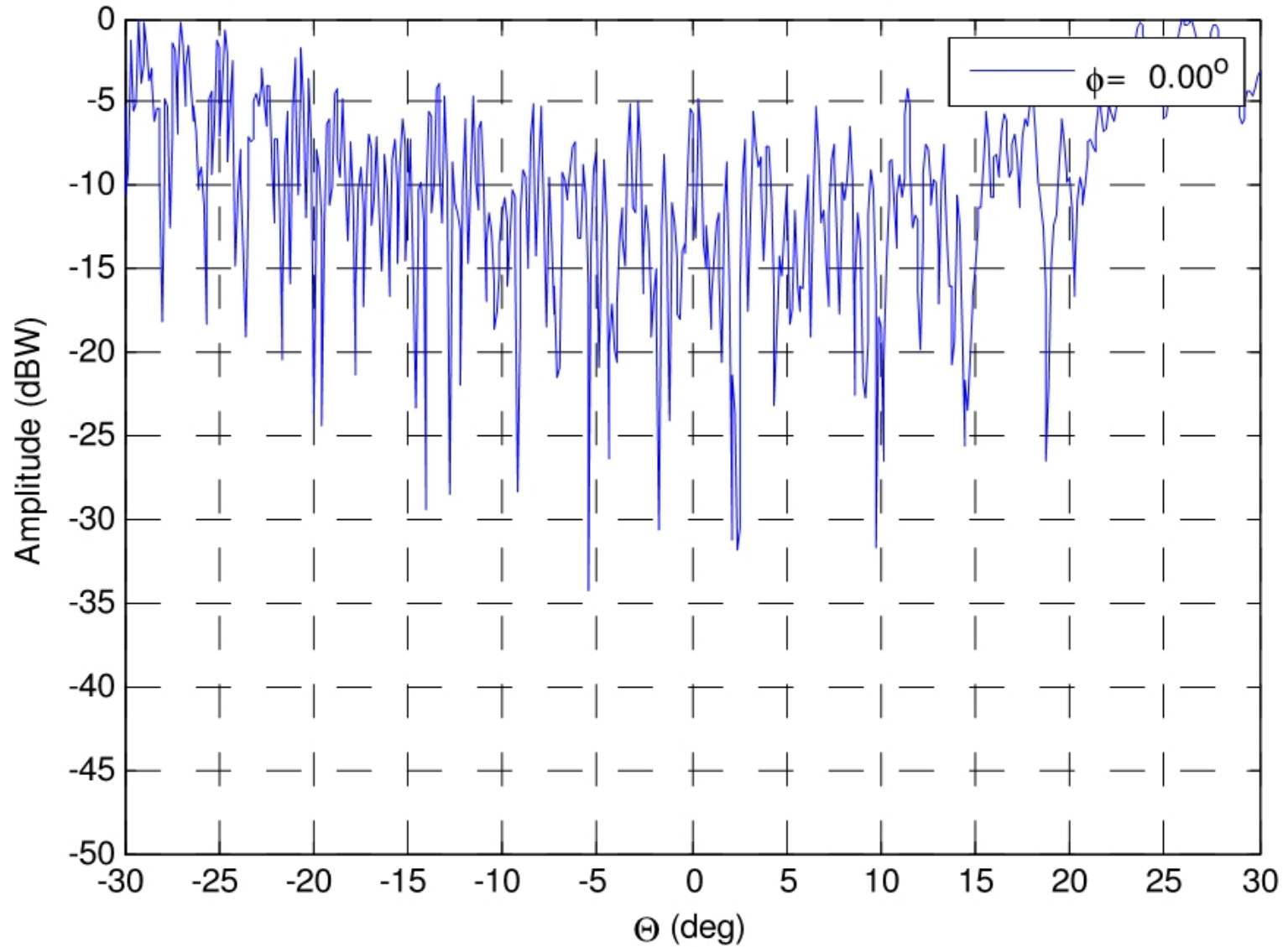
Normalized pattern cuts - farfield

Input file: tx-17.5-lhcp--10.cut, Peak: 4.74 dBW, Date: 06-Oct-2011



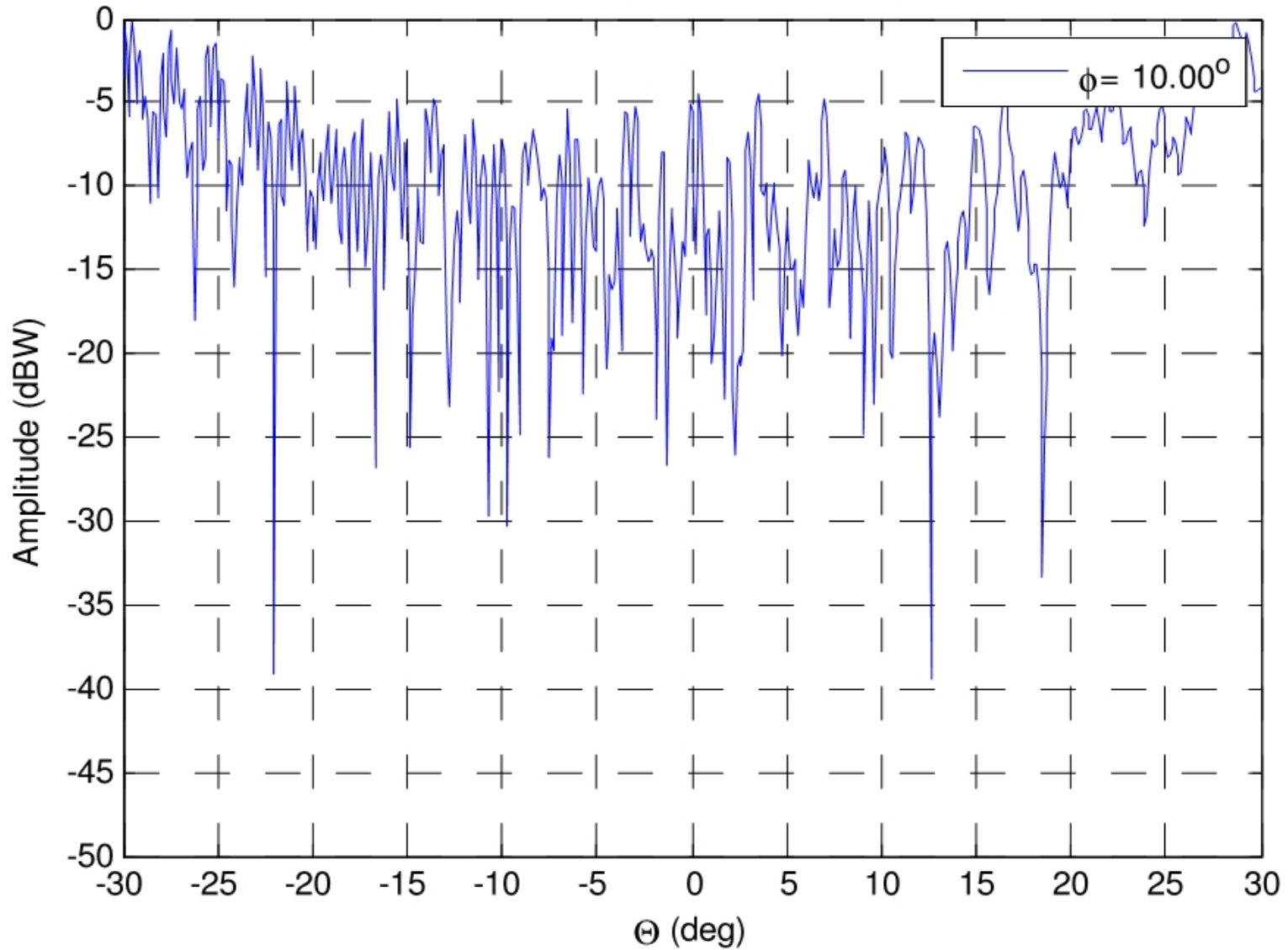
Normalized pattern cuts - farfield

Input file: tx-17.5-lhcp-0.cut, Peak: 3.33 dBW, Date: 06-Oct-2011



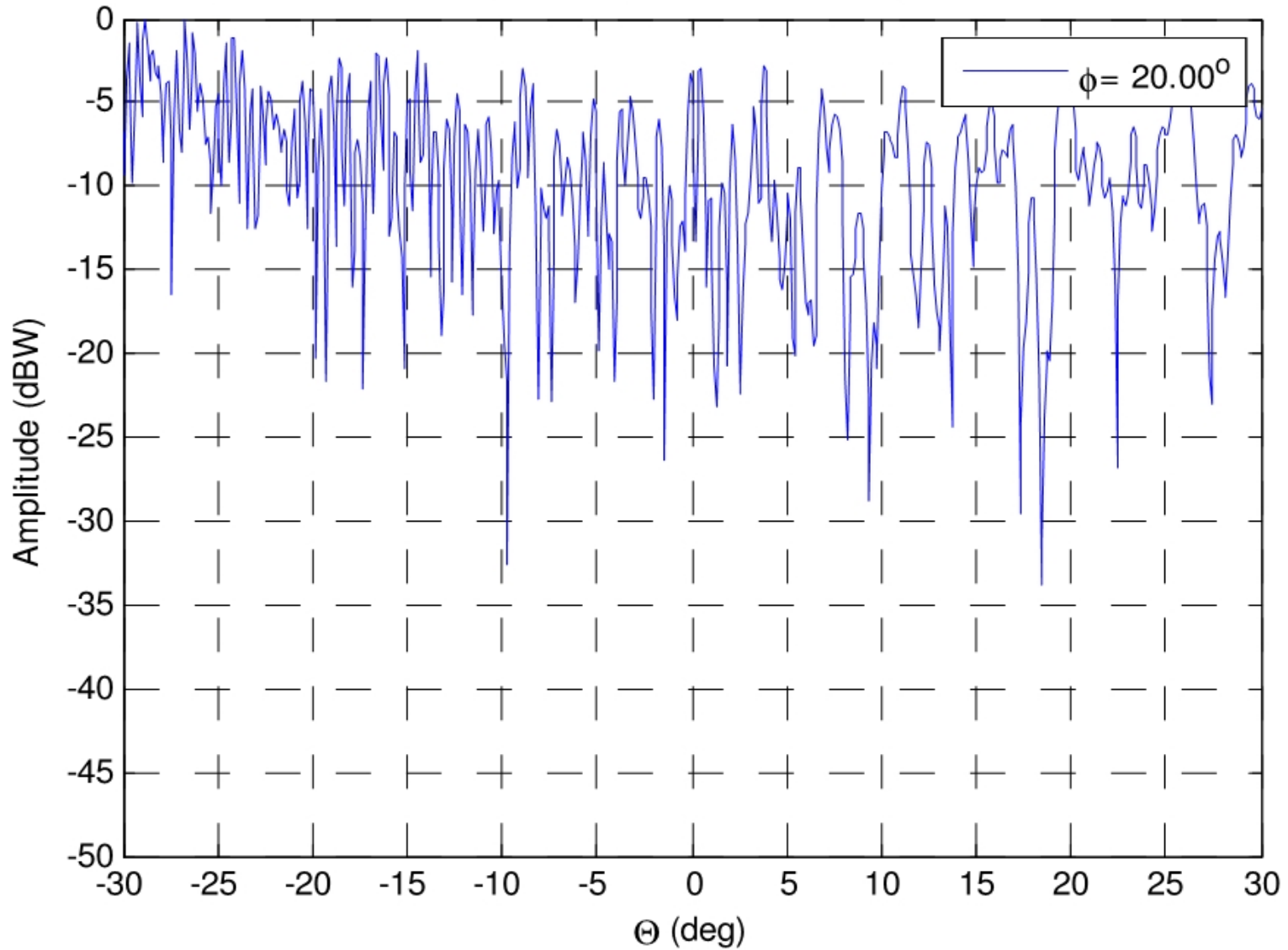
Normalized pattern cuts - farfield

Input file: tx-17.5-lhcp-10.cut, Peak: 3.12 dBW, Date: 06-Oct-2011



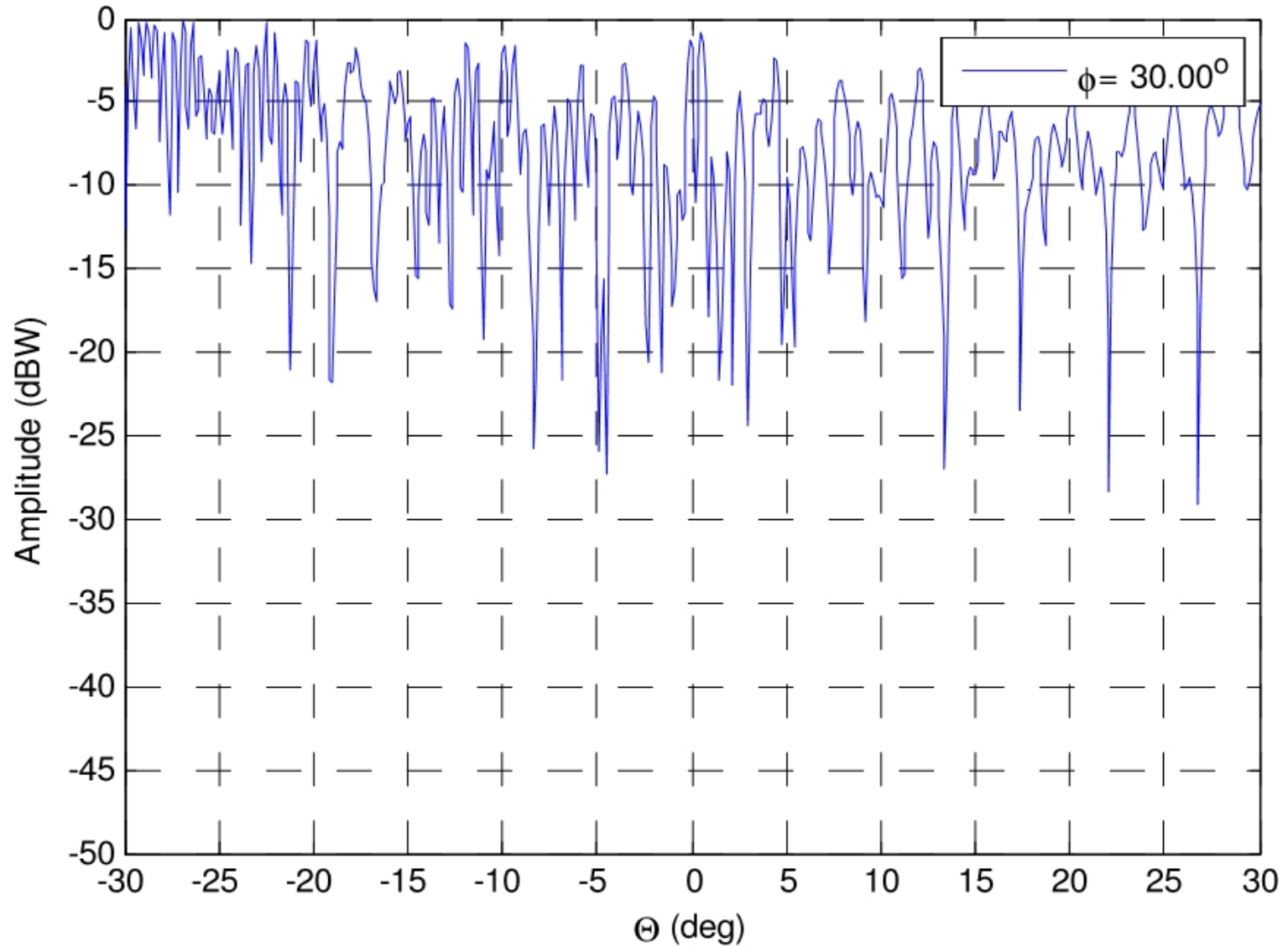
Normalized pattern cuts - farfield

Input file: tx-17.5-lhcp-20.cut, Peak: 1.39 dBW, Date: 06-Oct-2011



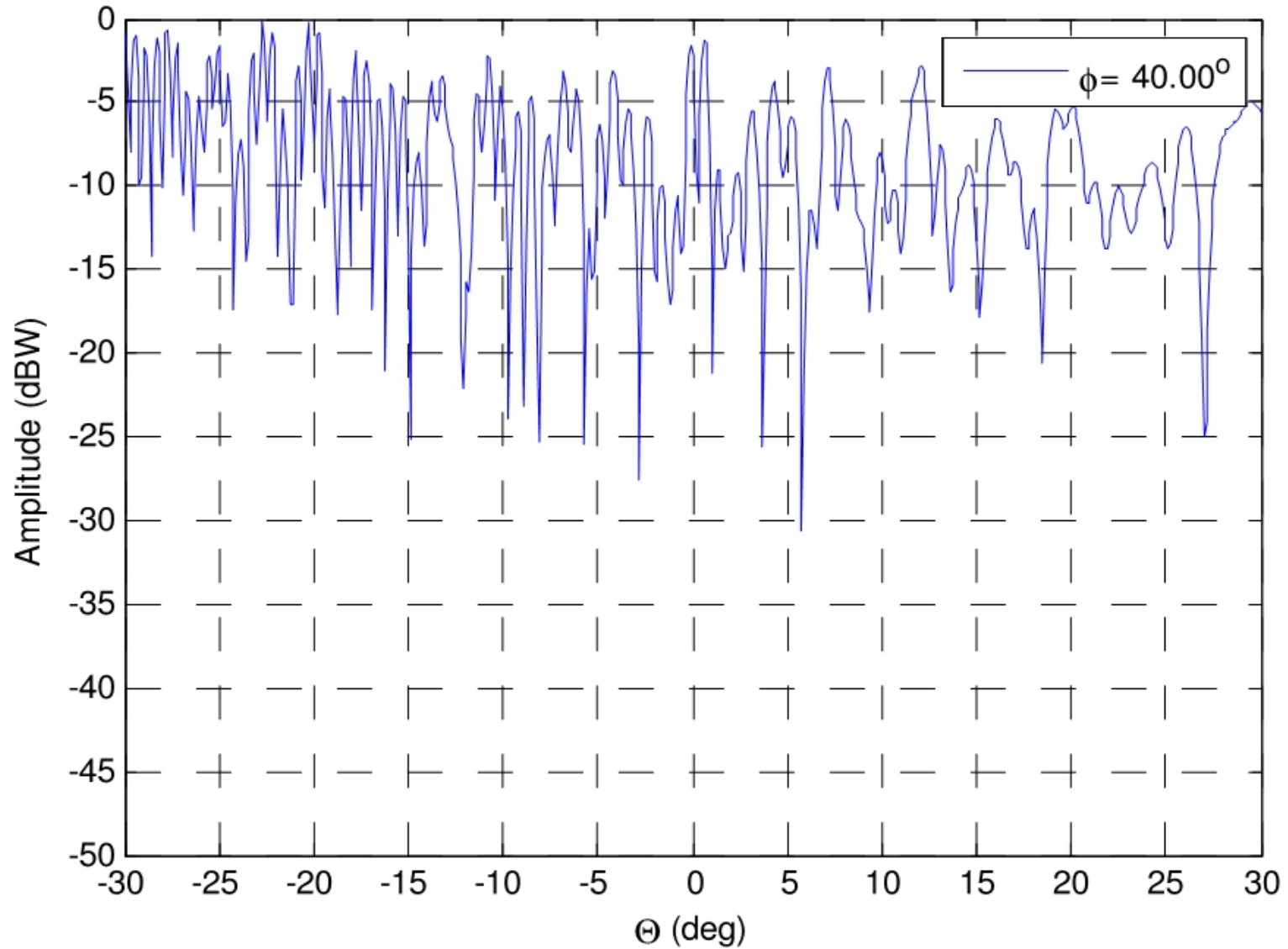
Normalized pattern cuts - farfield

Input file: tx-17.5-lhcp-30.cut, Peak: -0.60 dBW, Date: 06-Oct-2011



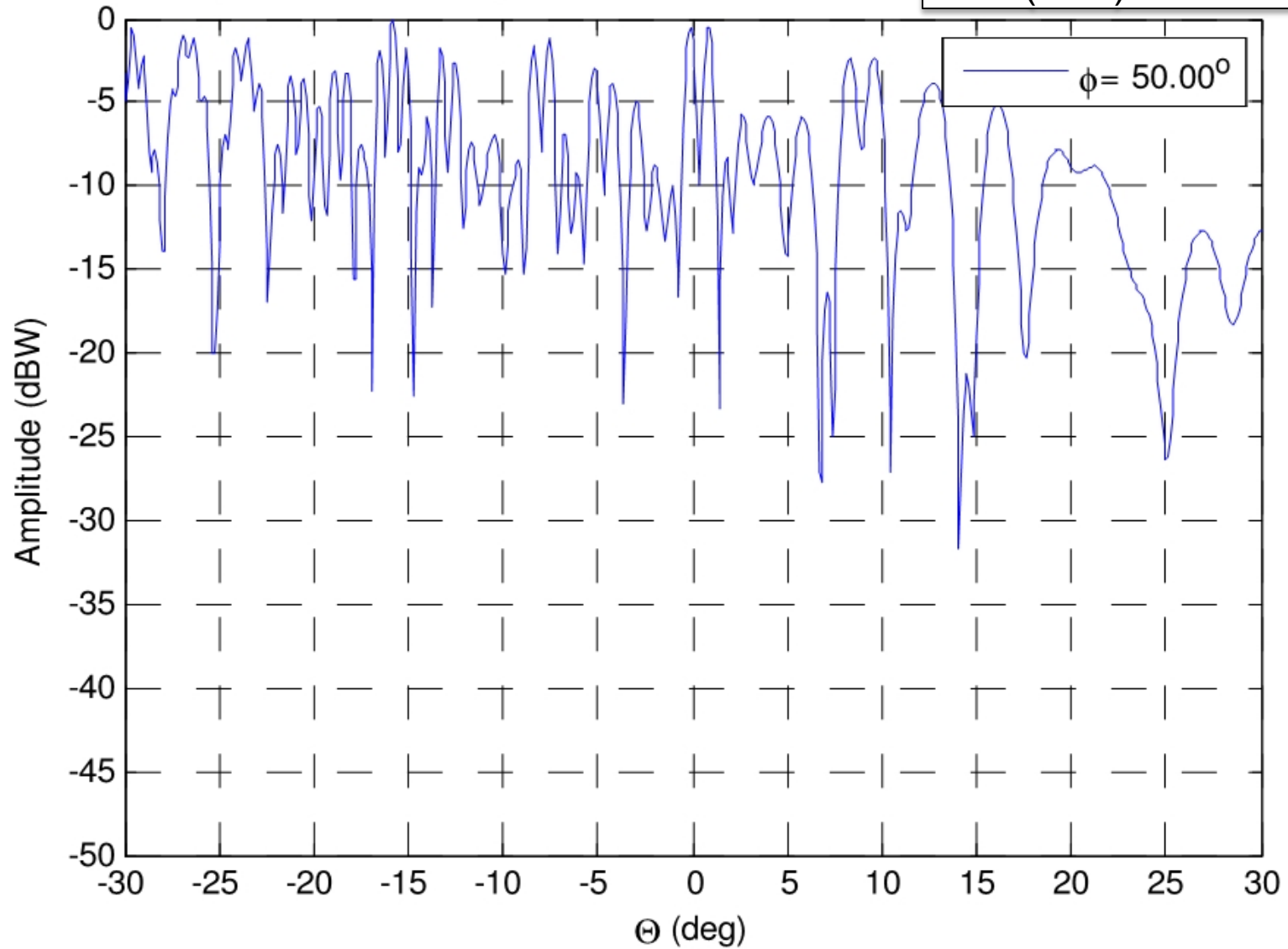
Normalized pattern cuts - farfield

Input file: tx-17.5-lhcp-40.cut, Peak: -0.25 dBW, Date: 06-Oct-2011



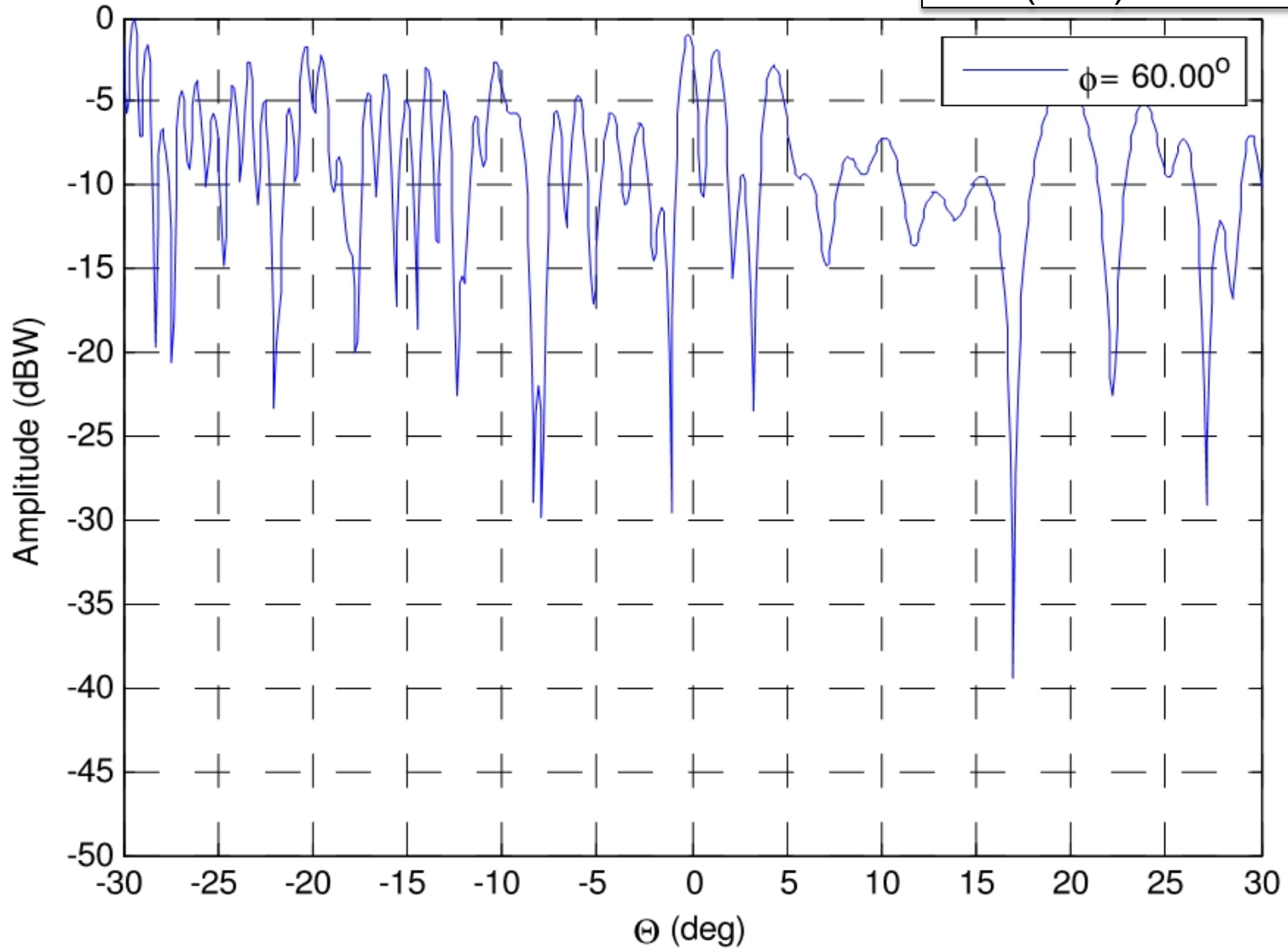
Normalized pattern cuts - farfield

Input file: tx-17.5-lhcp-50.cut, Peak: -1.19 dBW, EIRP (max) = 60.2 dBW



Normalized pattern cuts - farfield

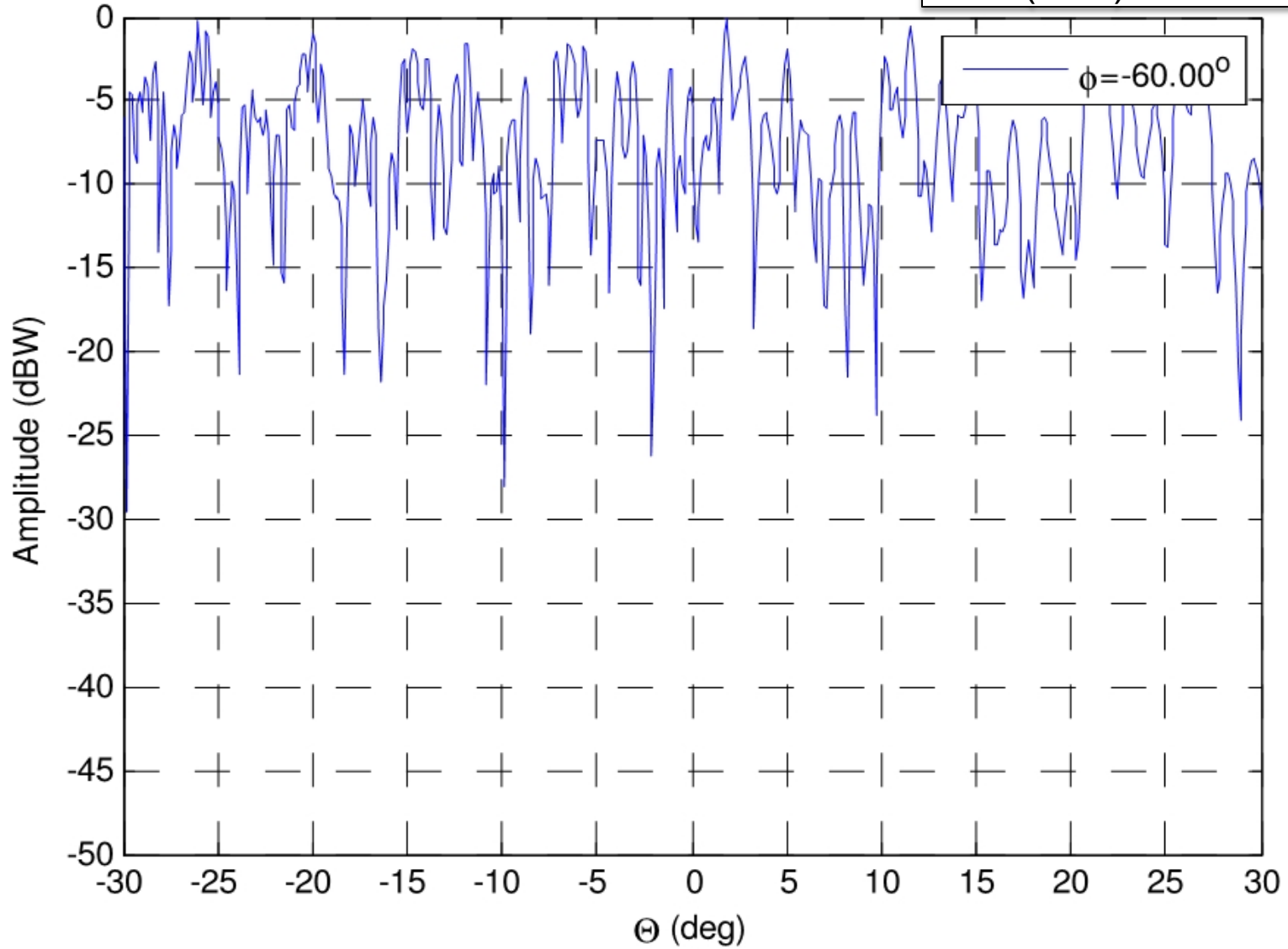
Input file: tx-17.5-lhcp-60.cut, Peak: -0.71 dBW, EIRP (max) = 60.2 dBW



RHCP at 17.7 GHz

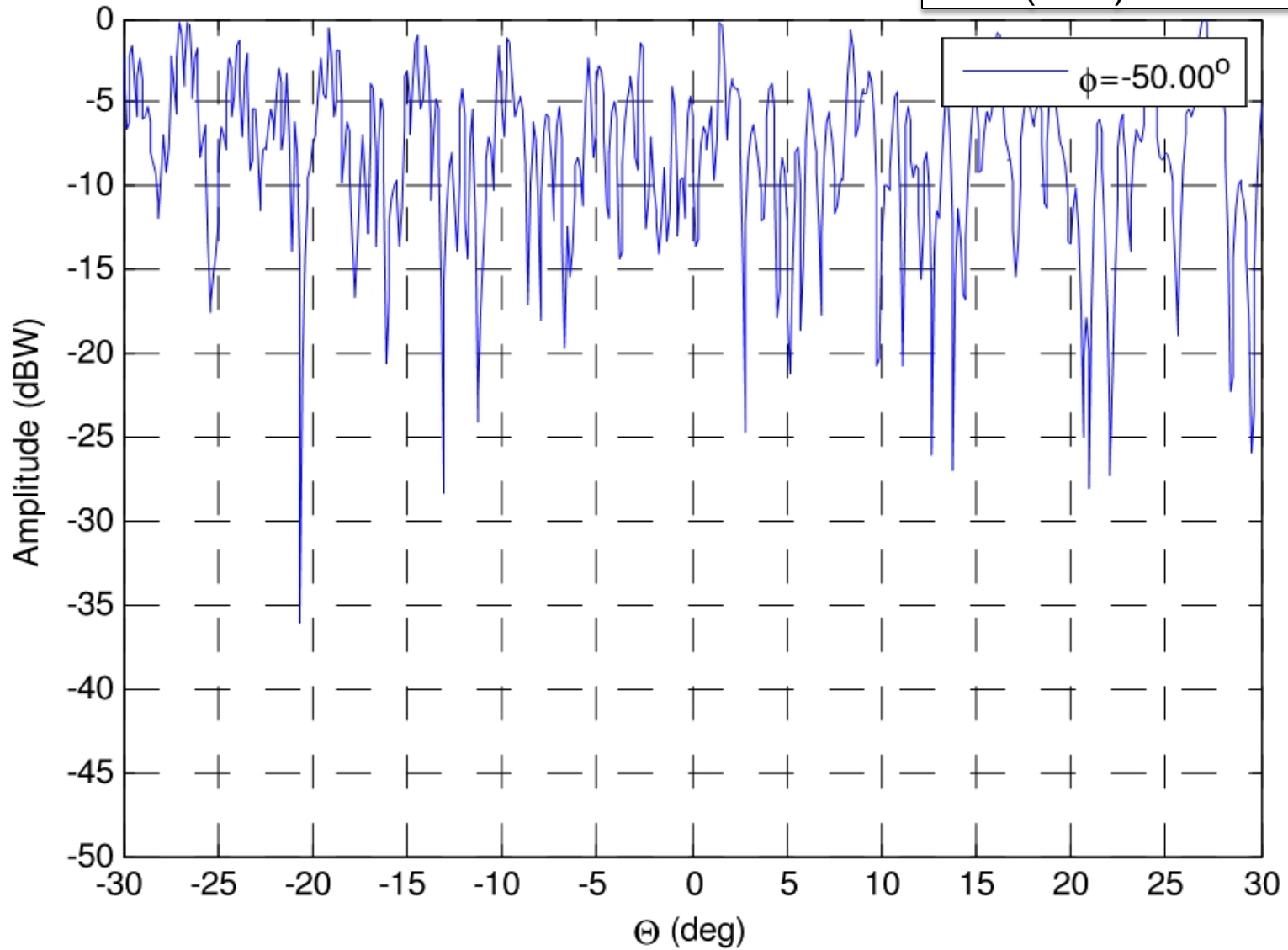
Normalized pattern cuts - farfield

Input file: tx-17.7-rhcp--60.cut, Peak: -2.02 dBW, EIRP (max) = 60.2 dBW



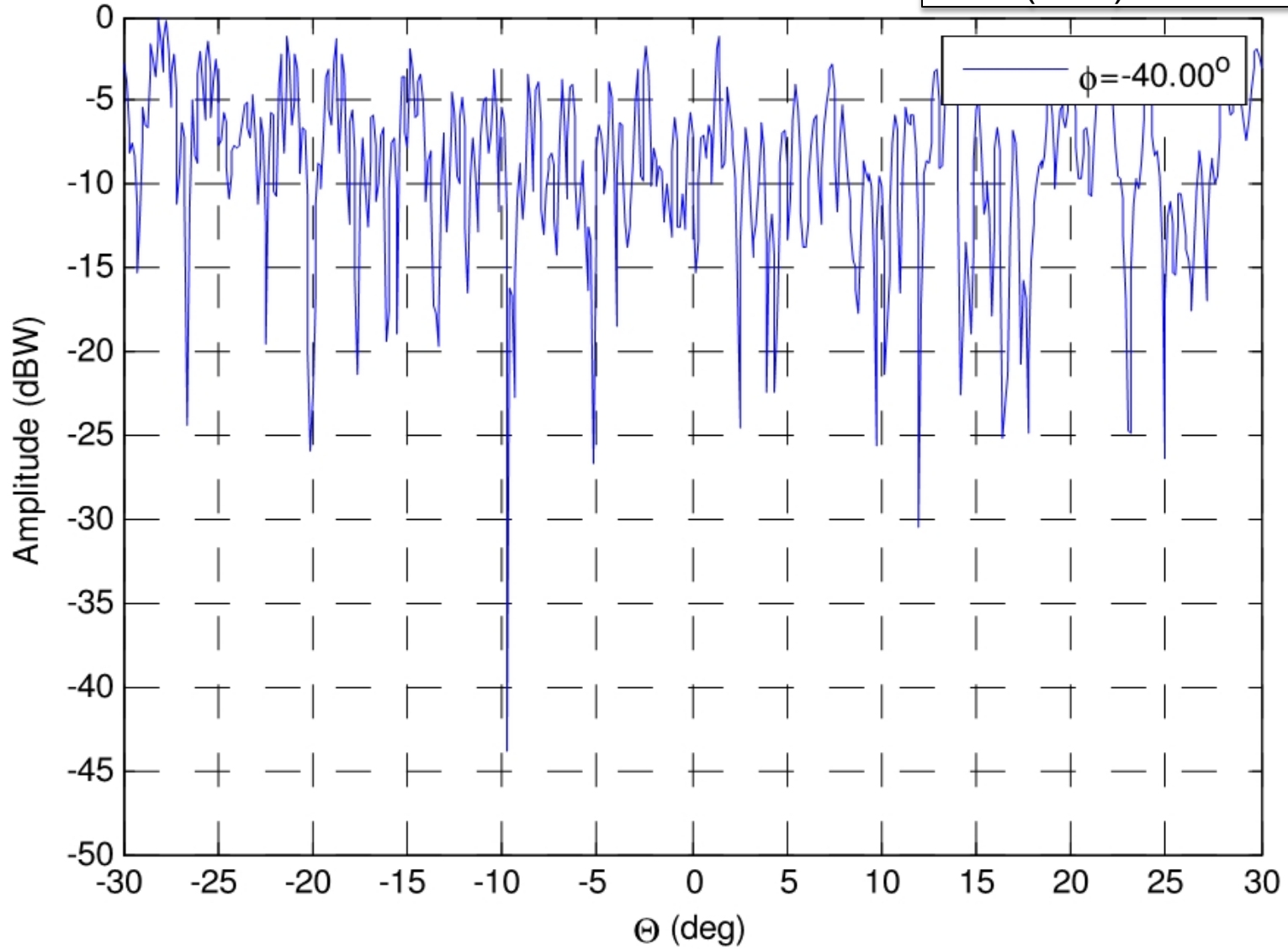
Normalized pattern cuts - farfield

Input file: tx-17.7-rhcp--50.cut, Peak: -1.57 dBW, EIRP (max) = 60.2 dBW



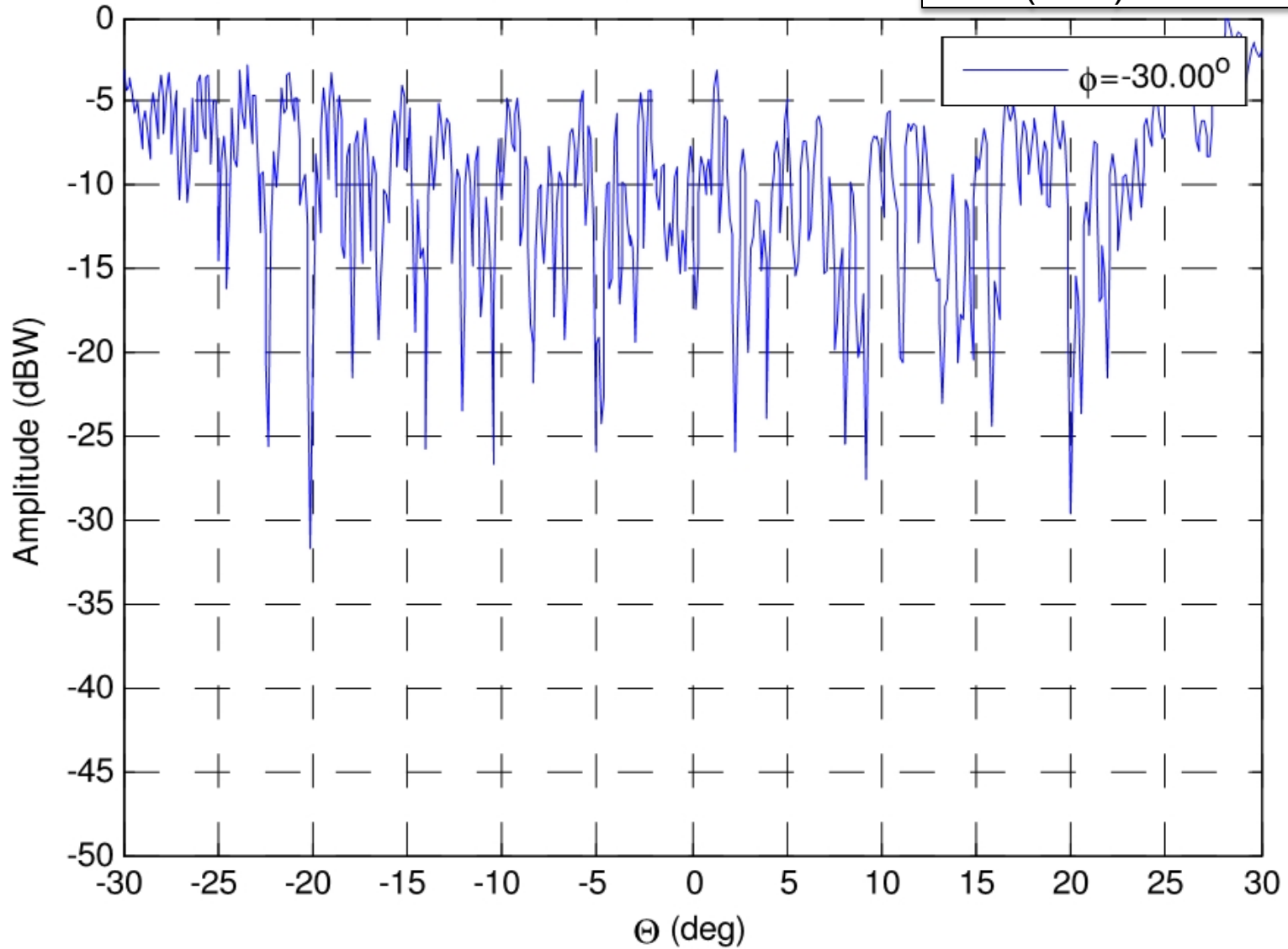
Normalized pattern cuts - farfield

Input file: tx-17.7-rhcp--40.cut, Peak: -0.40 dBW, EIRP (max) = 60.2 dBW



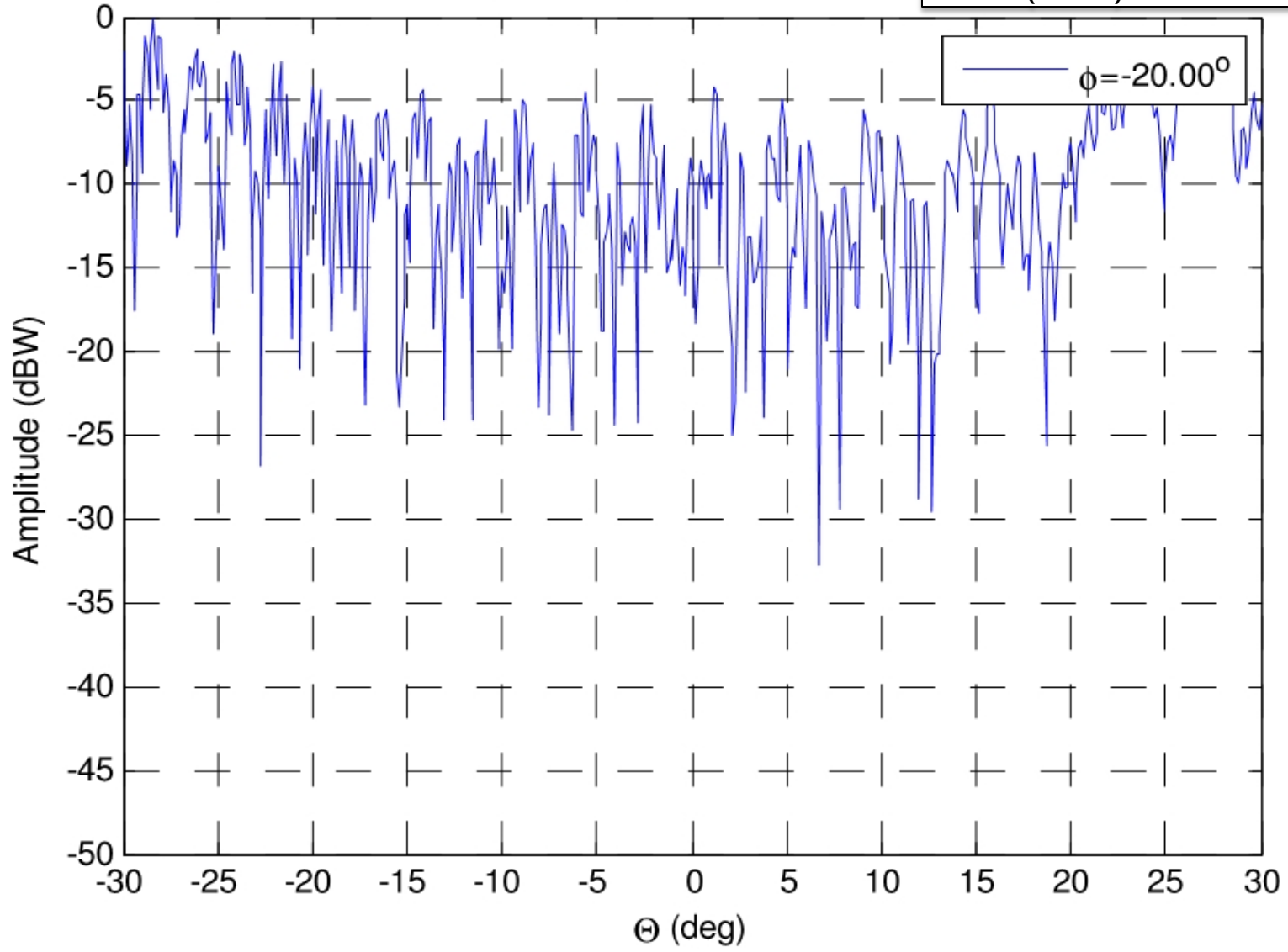
Normalized pattern cuts - farfield

Input file: tx-17.7-rhcp--30.cut, Peak: 1.58 dBW, EIRP (max) = 60.2 dBW



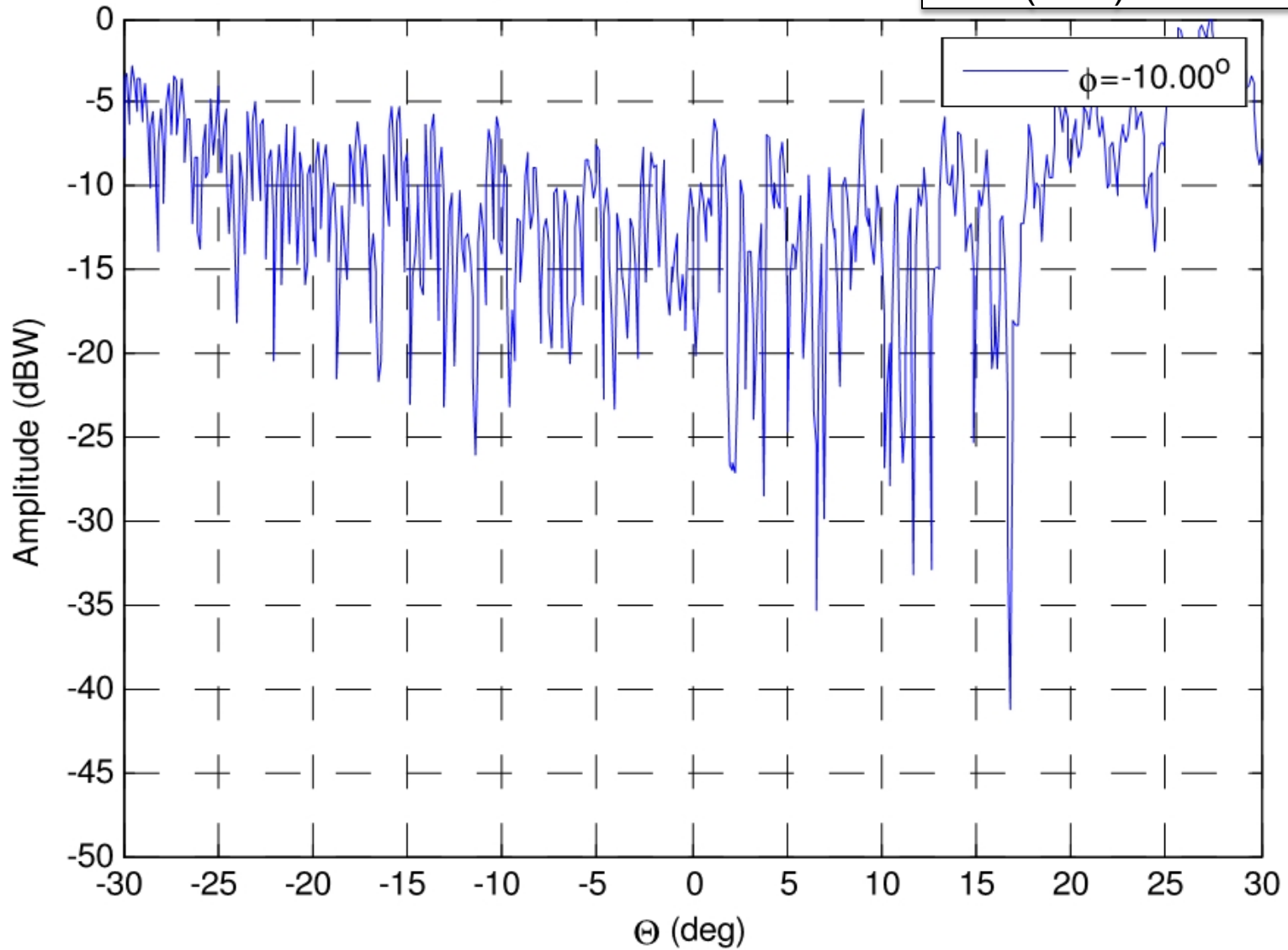
Normalized pattern cuts - farfield

Input file: tx-17.7-rhcp--20.cut, Peak: 2.39 dBW, EIRP (max) = 60.2 dBW



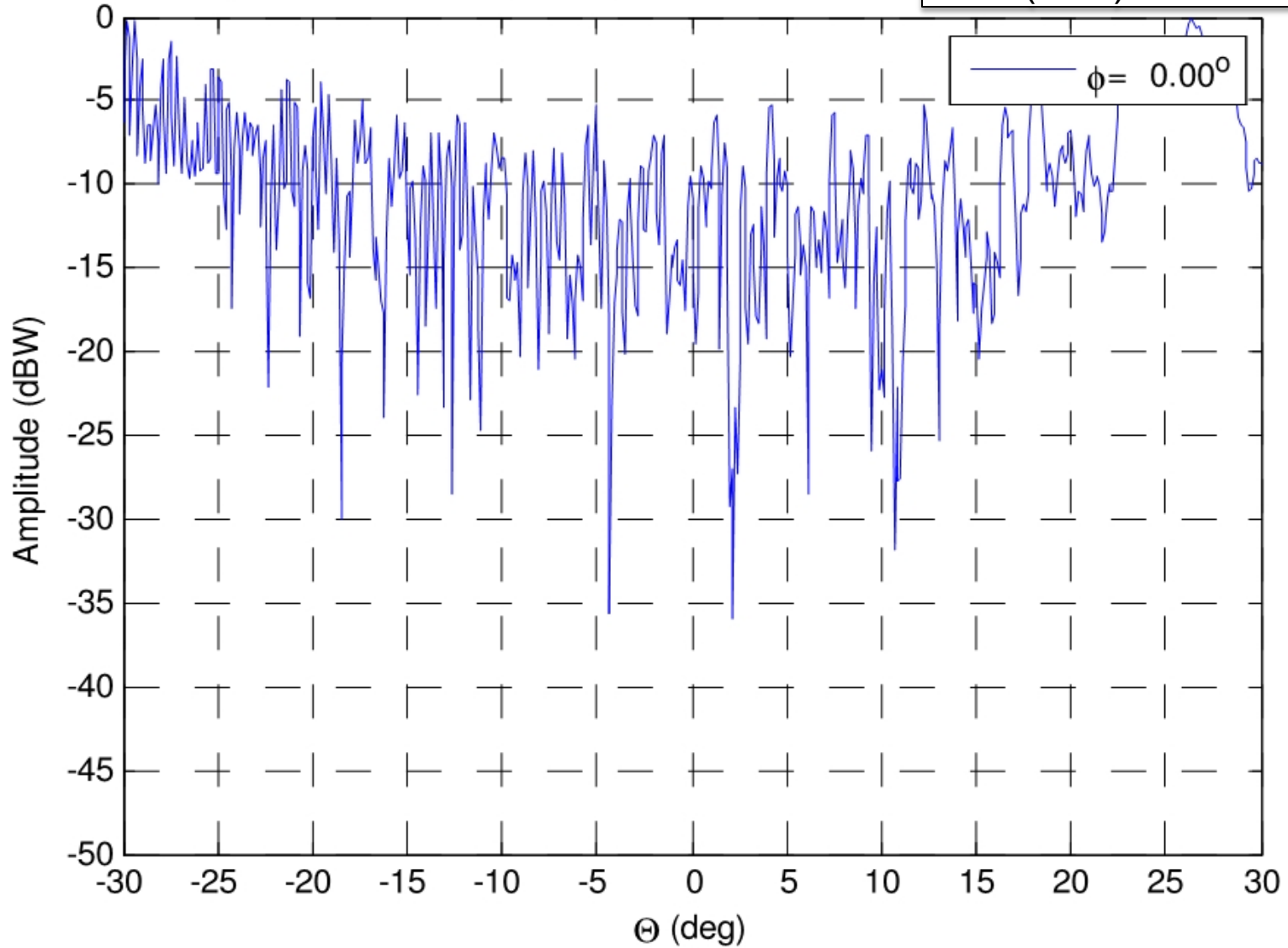
Normalized pattern cuts - farfield

Input file: tx-17.7-rhcp--10.cut, Peak: 4.06 dBW, EIRP (max) = 60.2 dBW



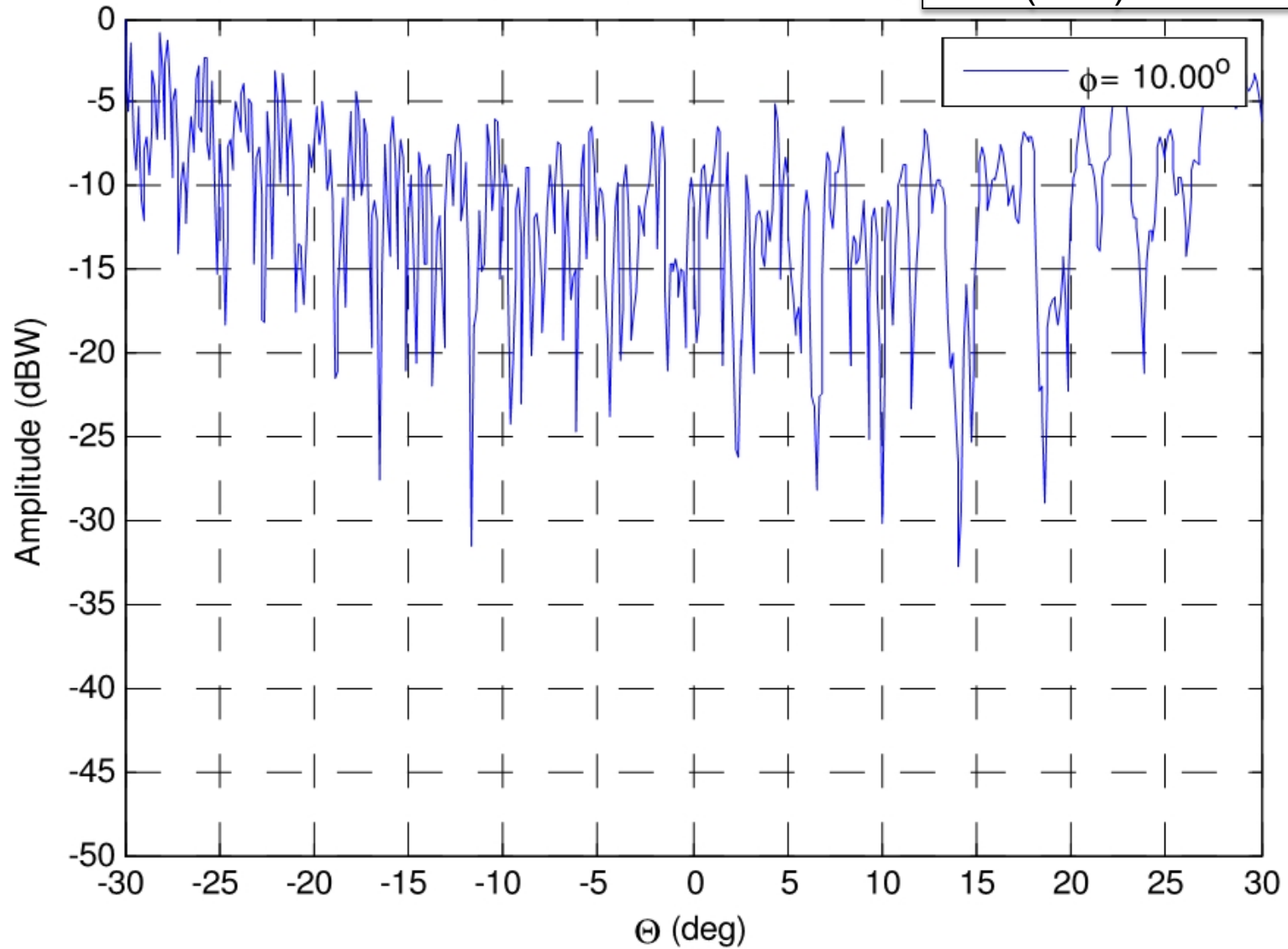
Normalized pattern cuts - farfield

Input file: tx-17.7-rhcp-0.cut, Peak: 3.43 dBW, EIRP (max) = 60.2 dBW



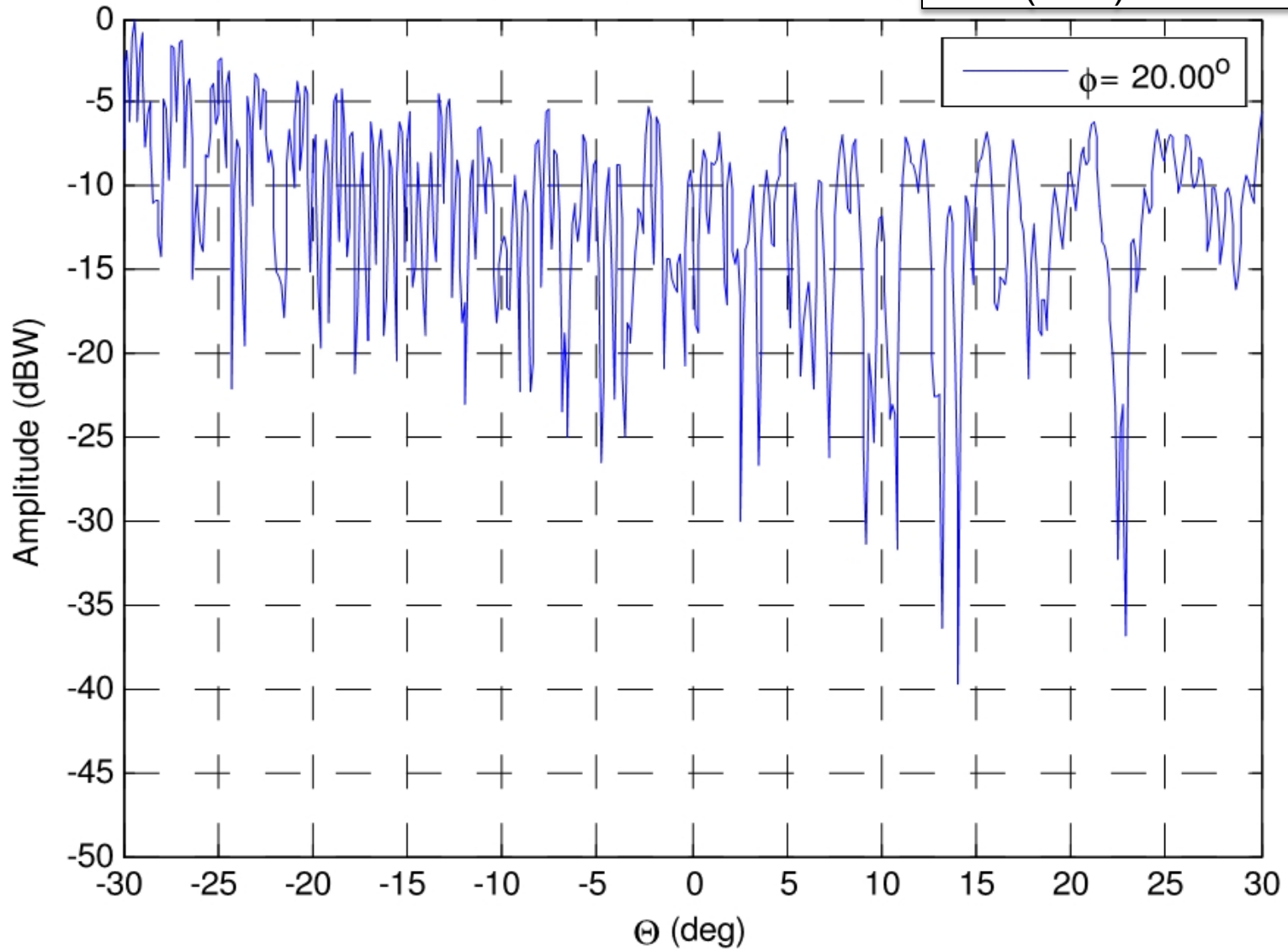
Normalized pattern cuts - farfield

Input file: tx-17.7-rhcp-10.cut, Peak: 3.49 dBW, EIRP (max) = 60.2 dBW



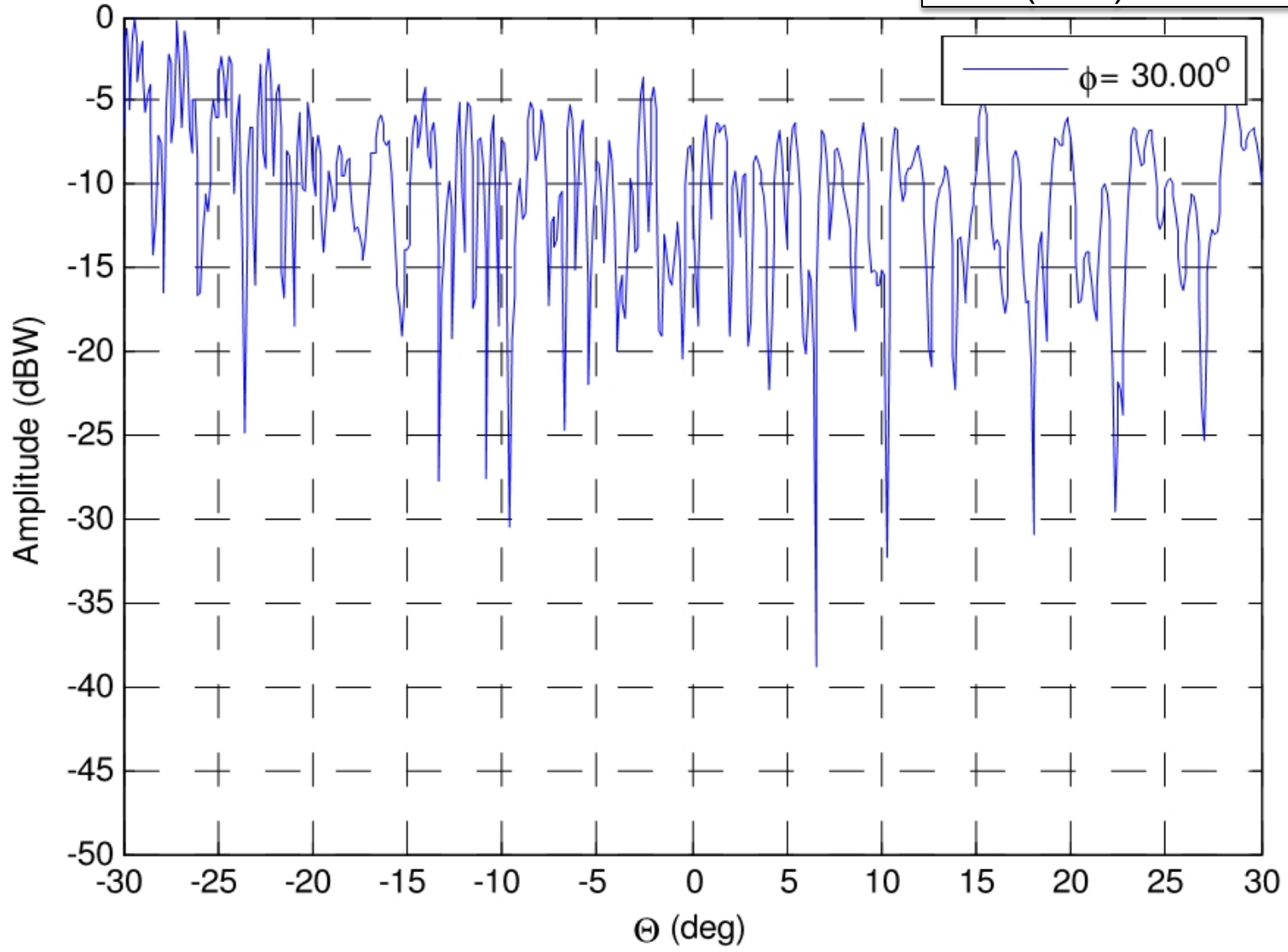
Normalized pattern cuts - farfield

Input file: tx-17.7-rhcp-20.cut, Peak: 3.11 dBW, EIRP (max) = 60.2 dBW



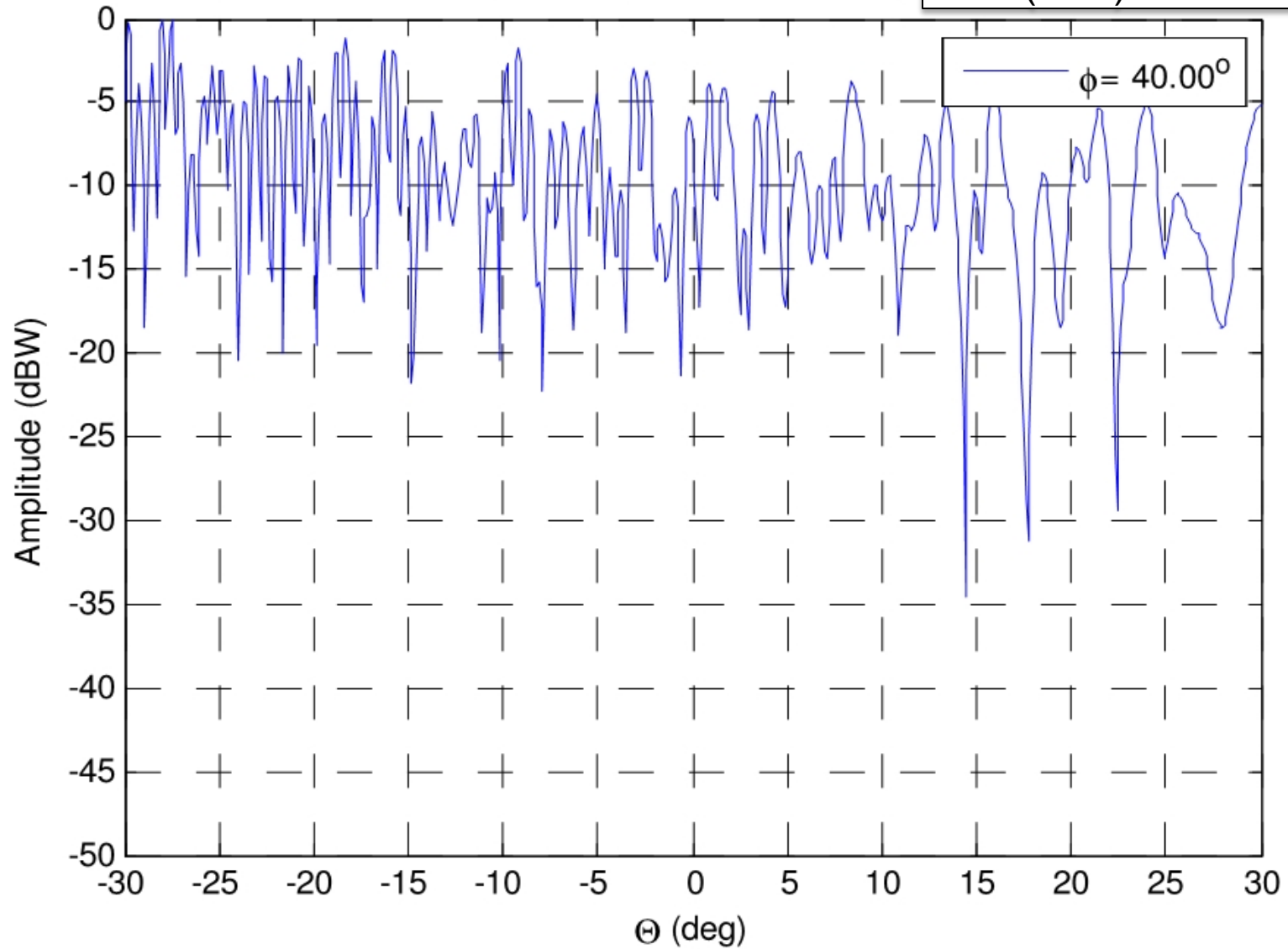
Normalized pattern cuts - farfield

Input file: tx-17.7-rhcp-30.cut, Peak: 1.58 dBW, EIRP (max) = 60.2 dBW



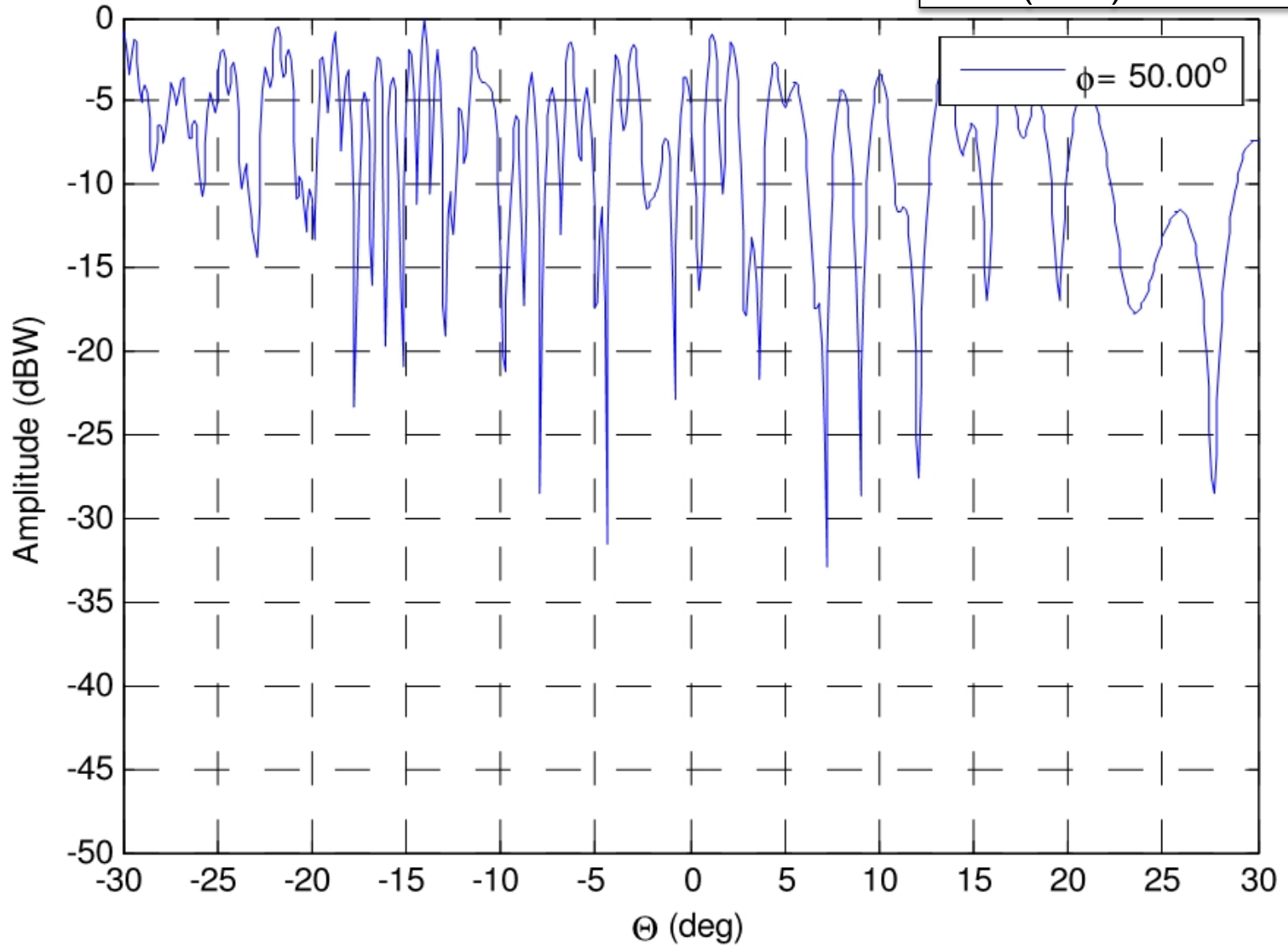
Normalized pattern cuts - farfield

Input file: tx-17.7-rhcp-40.cut, Peak: 0.08 dBW, EIRP (max) = 60.2 dBW



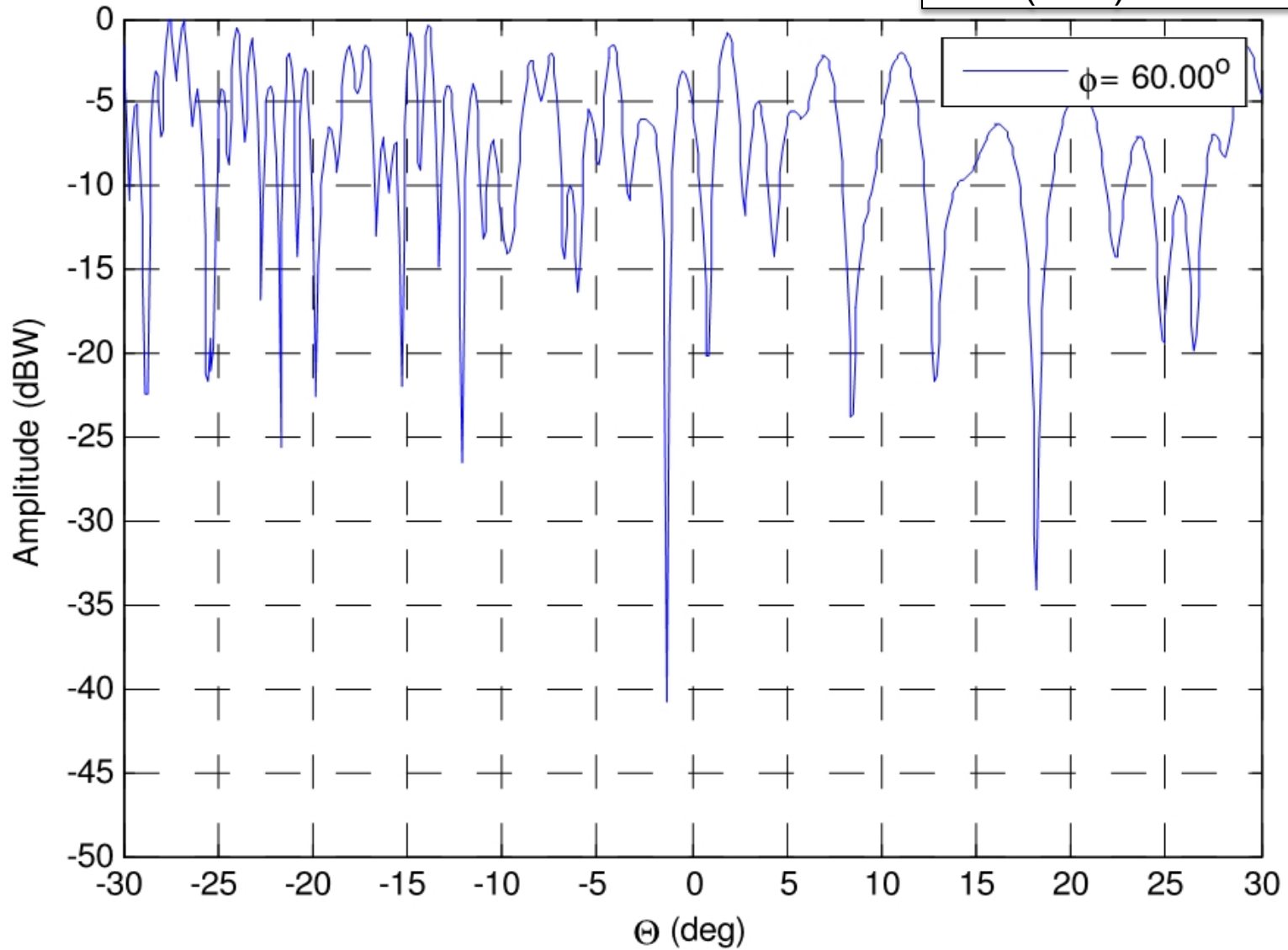
Normalized pattern cuts - farfield

Input file: tx-17.7-rhcp-50.cut, Peak: -2.19 dBW, EIRP (max) = 60.2 dBW



Normalized pattern cuts - farfield

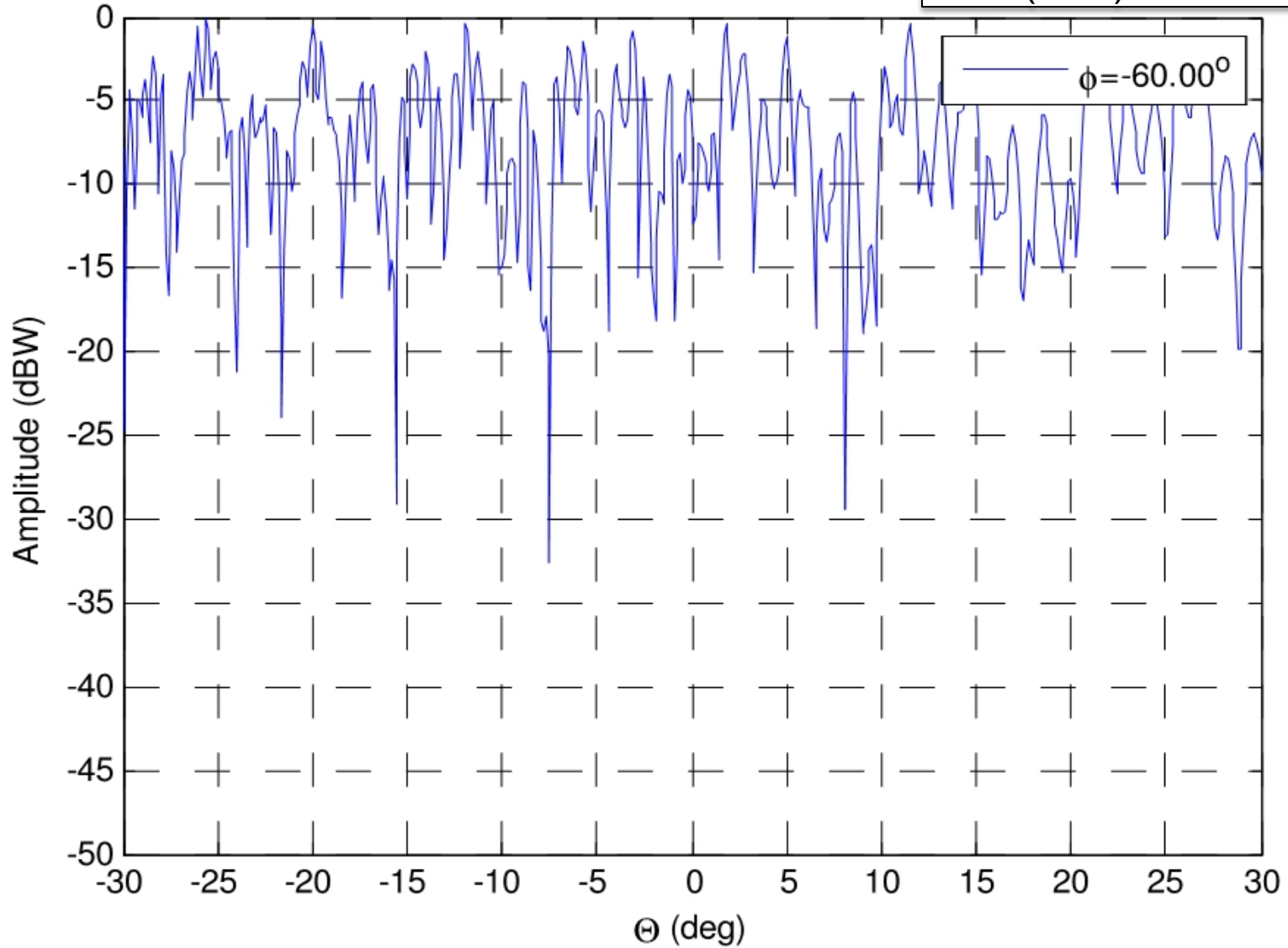
Input file: tx-17.7-rhcp-60.cut, Peak: -2.40 dBW, EIRP (max) = 60.2 dBW



LHCP at 17.7 GHz

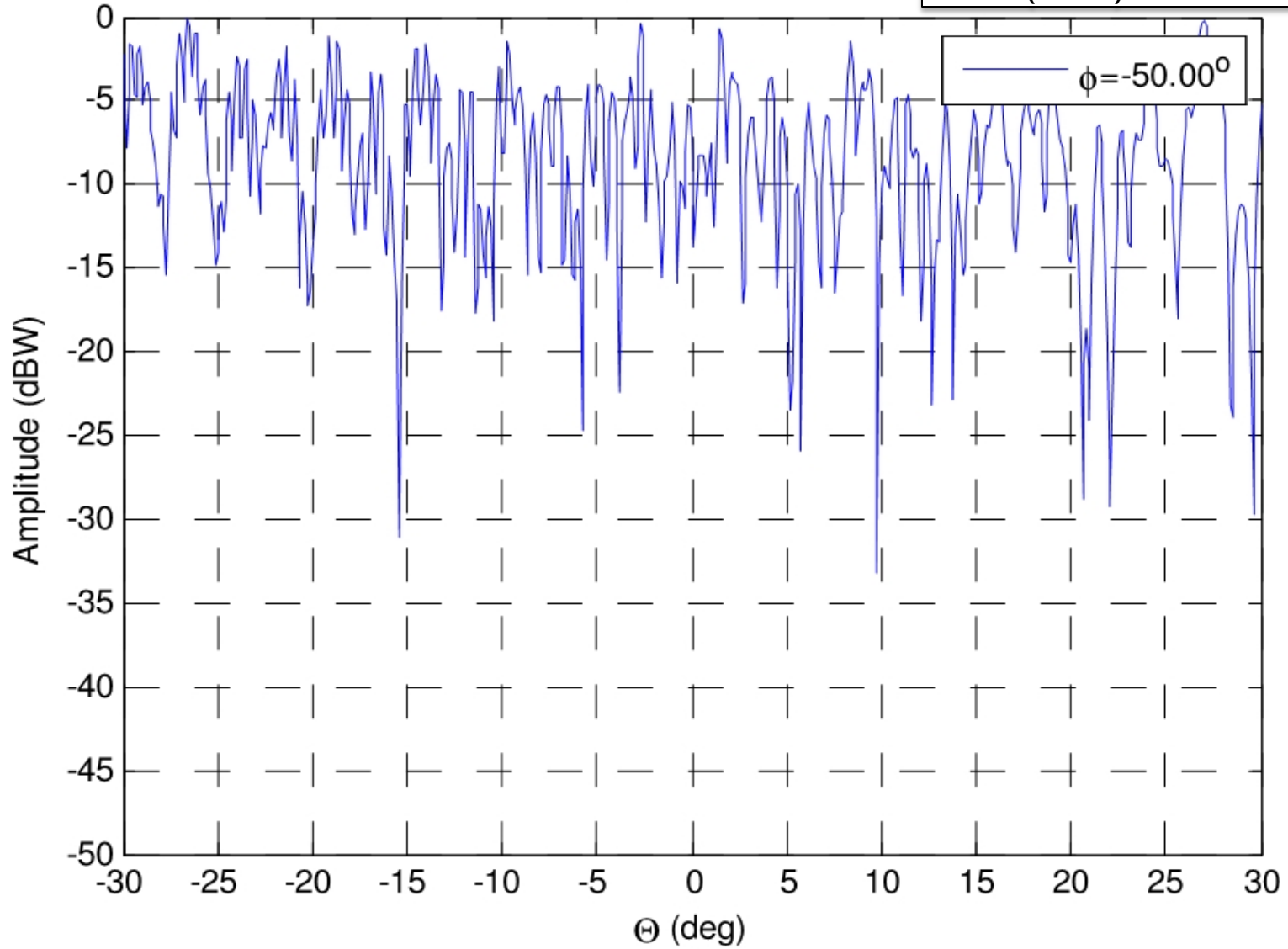
Normalized pattern cuts - farfield

Input file: tx-17.7-lhcp--60.cut, Peak: -2.17 dBW, EIRP (max) = 60.2 dBW



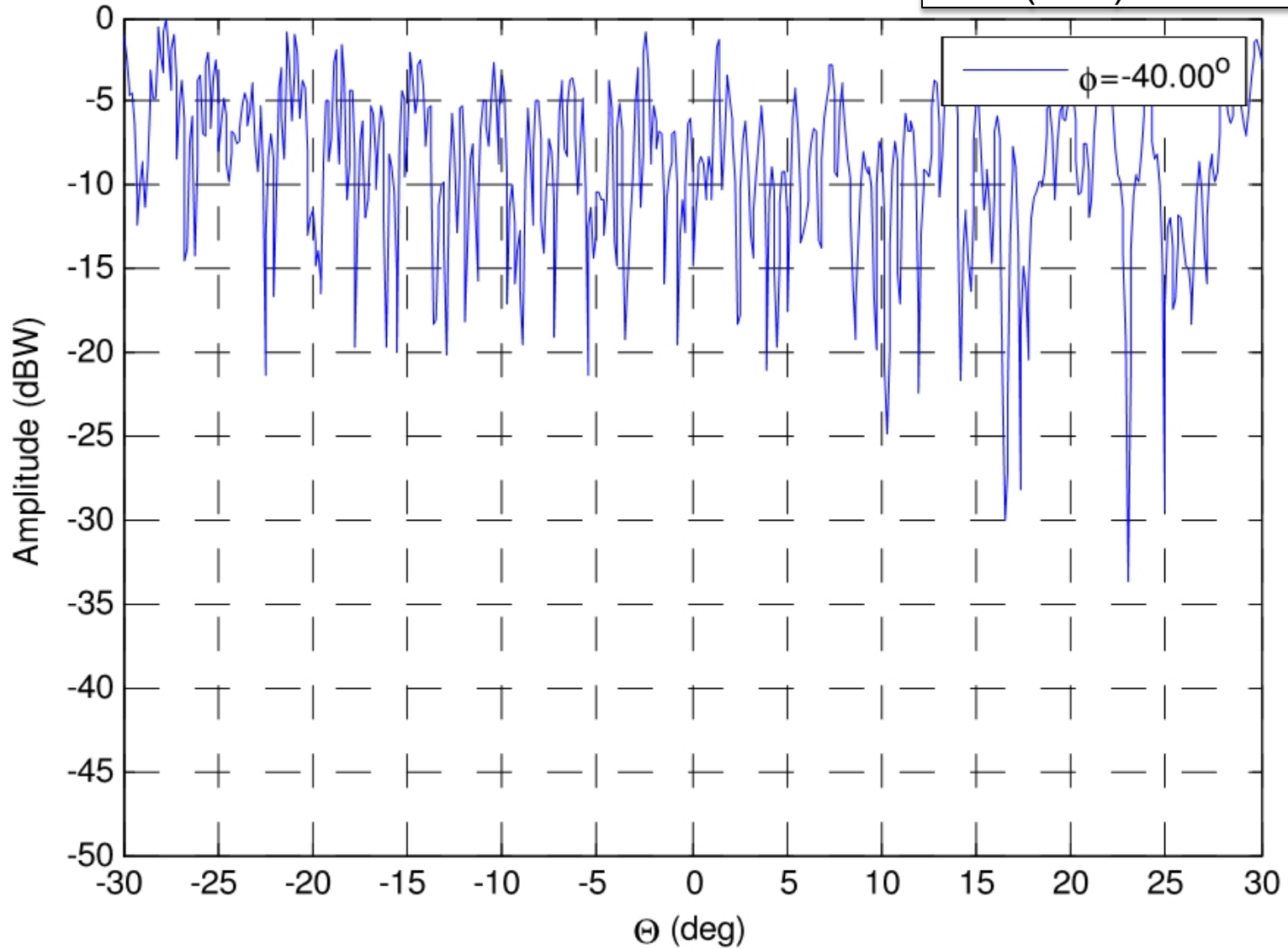
Normalized pattern cuts - farfield

Input file: tx-17.7-lhcp--50.cut, Peak: -1.29 dBW, EIRP (max) = 60.2 dBW



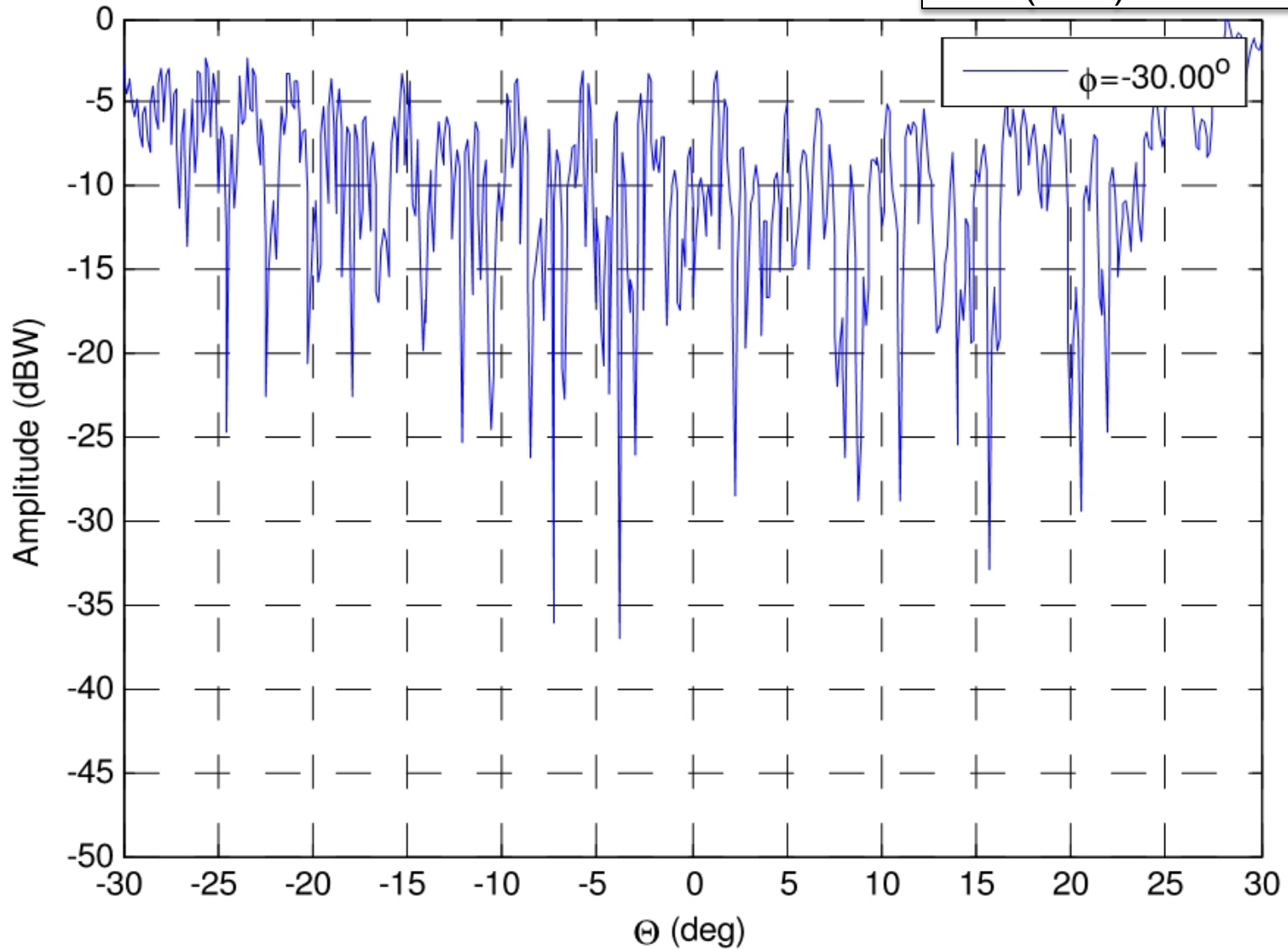
Normalized pattern cuts - farfield

Input file: tx-17.7-lhcp--40.cut, Peak: -0.51 dBW, EIRP (max) = 60.2 dBW



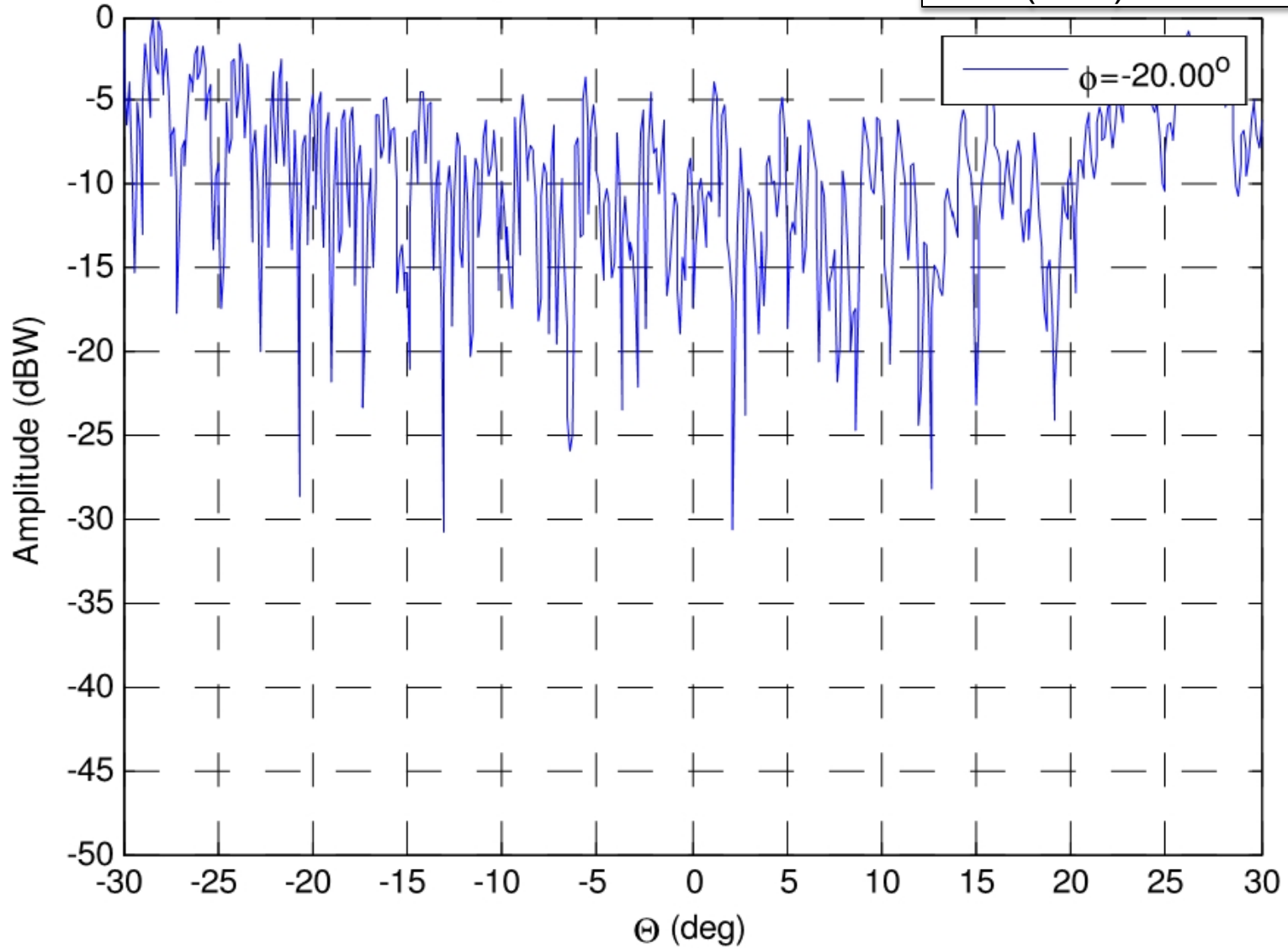
Normalized pattern cuts - farfield

Input file: tx-17.7-lhcp--30.cut, Peak: 1.41 dBW, EIRP (max) = 60.2 dBW



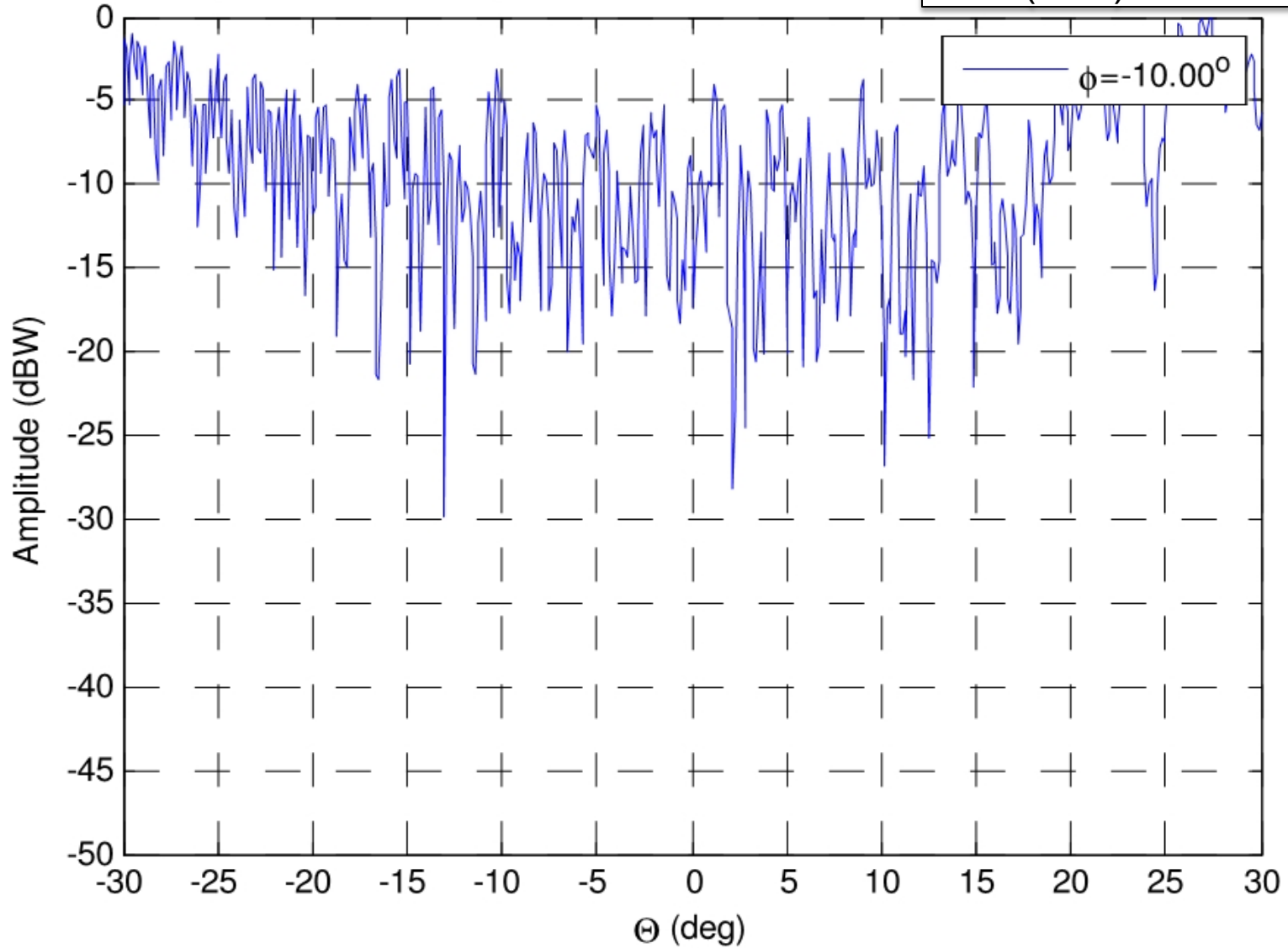
Normalized pattern cuts - farfield

Input file: tx-17.7-lhcp--20.cut, Peak: 2.12 dBW, EIRP (max) = 60.2 dBW



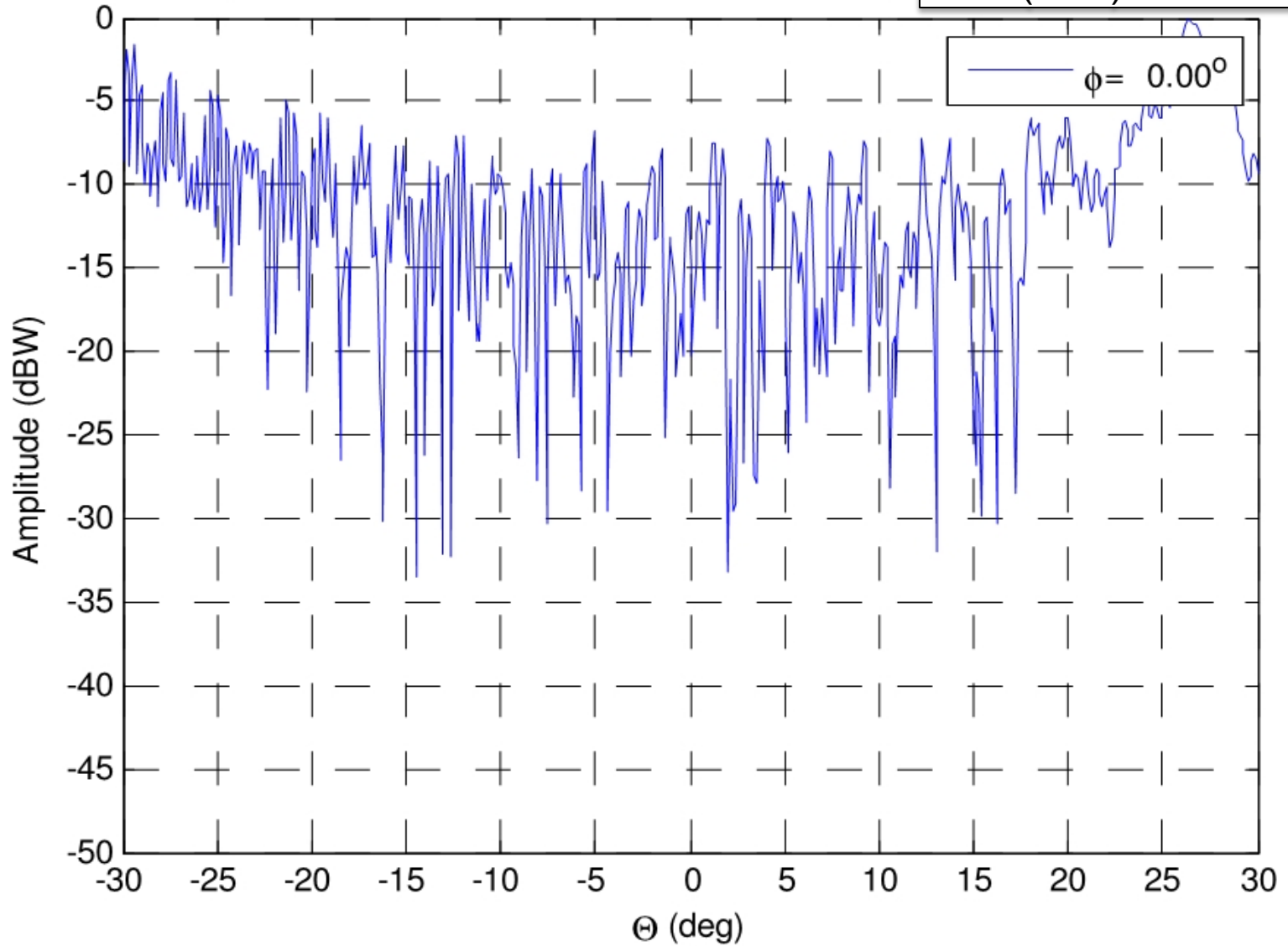
Normalized pattern cuts - farfield

Input file: tx-17.7-lhcp--10.cut, Peak: 2.11 dBW, EIRP (max) = 60.2 dBW



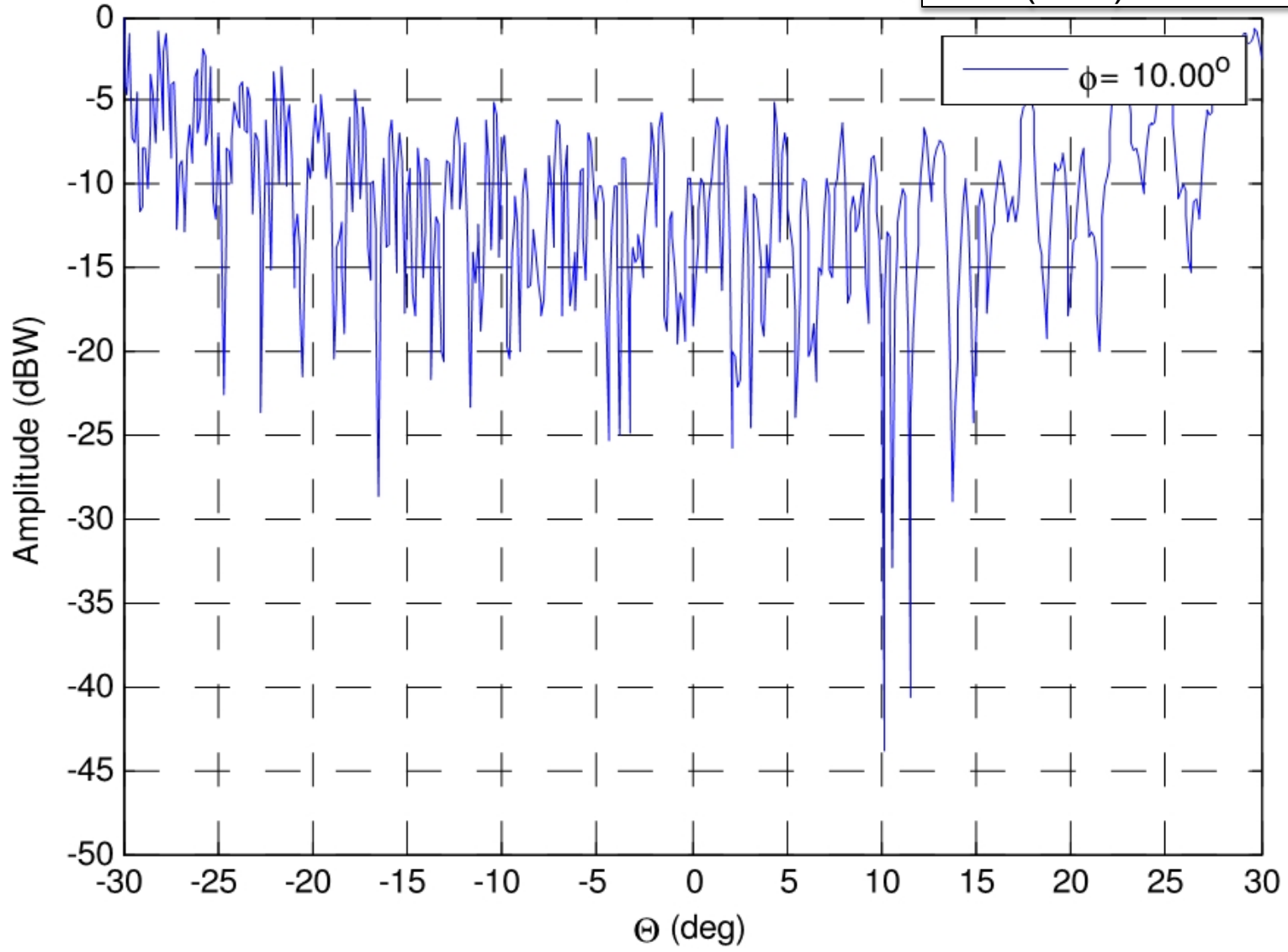
Normalized pattern cuts - farfield

Input file: tx-17.7-lhcp-0.cut, Peak: 5.07 dBW, EIRP (max) = 60.2 dBW



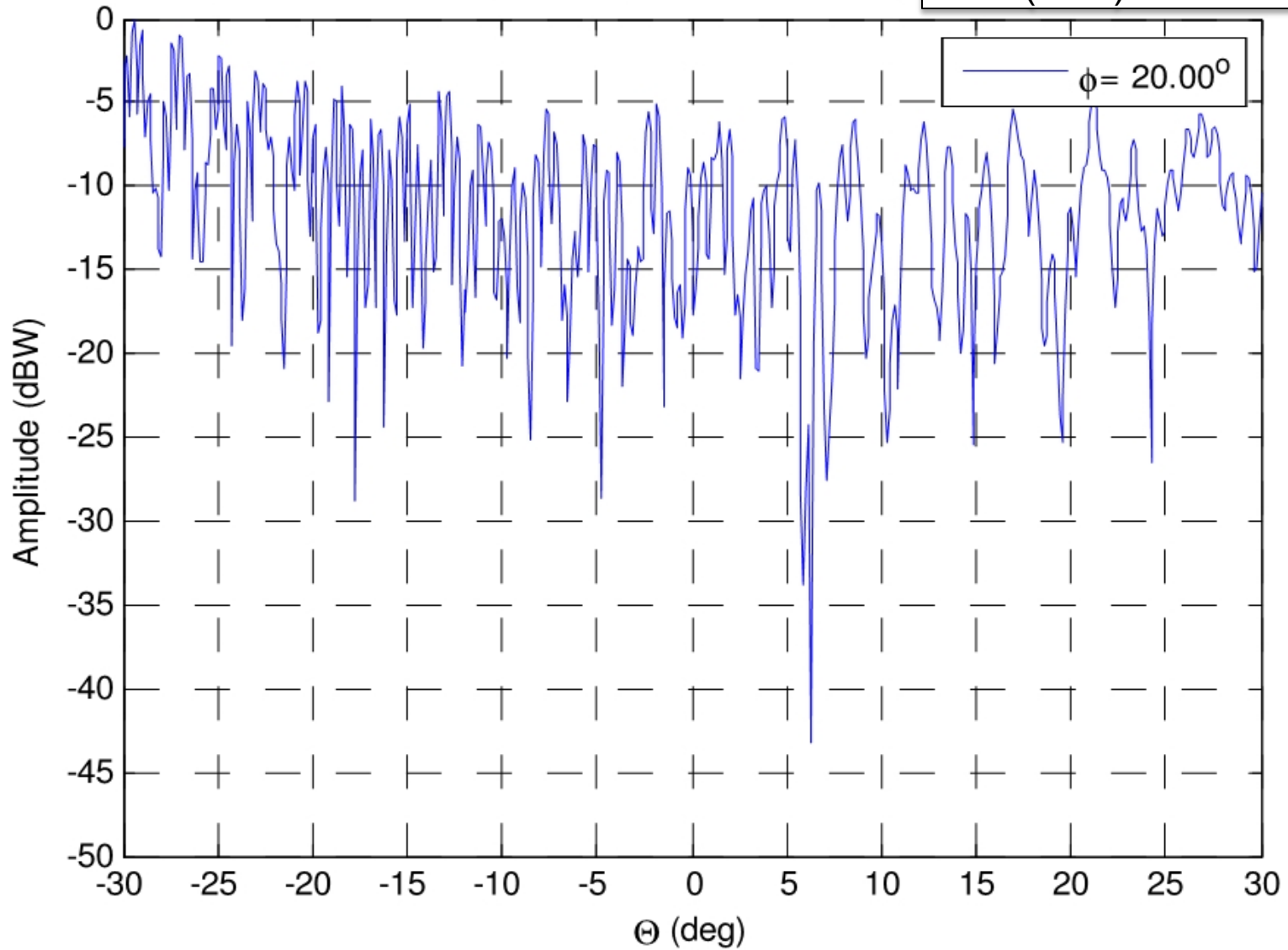
Normalized pattern cuts - farfield

Input file: tx-17.7-lhcp-10.cut, Peak: 3.41 dBW, EIRP (max) = 60.2 dBW



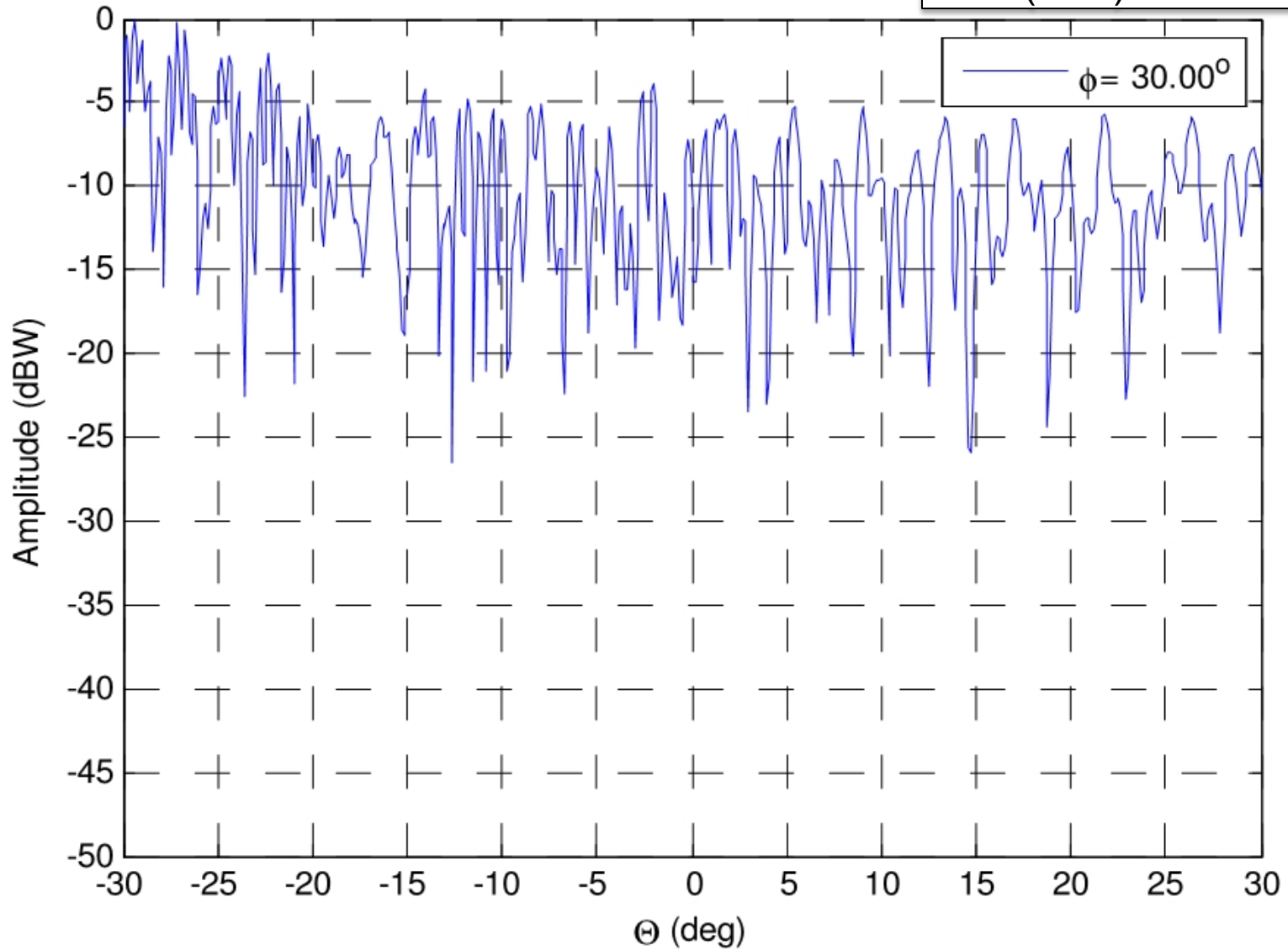
Normalized pattern cuts - farfield

Input file: tx-17.7-lhcp-20.cut, Peak: 2.96 dBW, EIRP (max) = 60.2 dBW



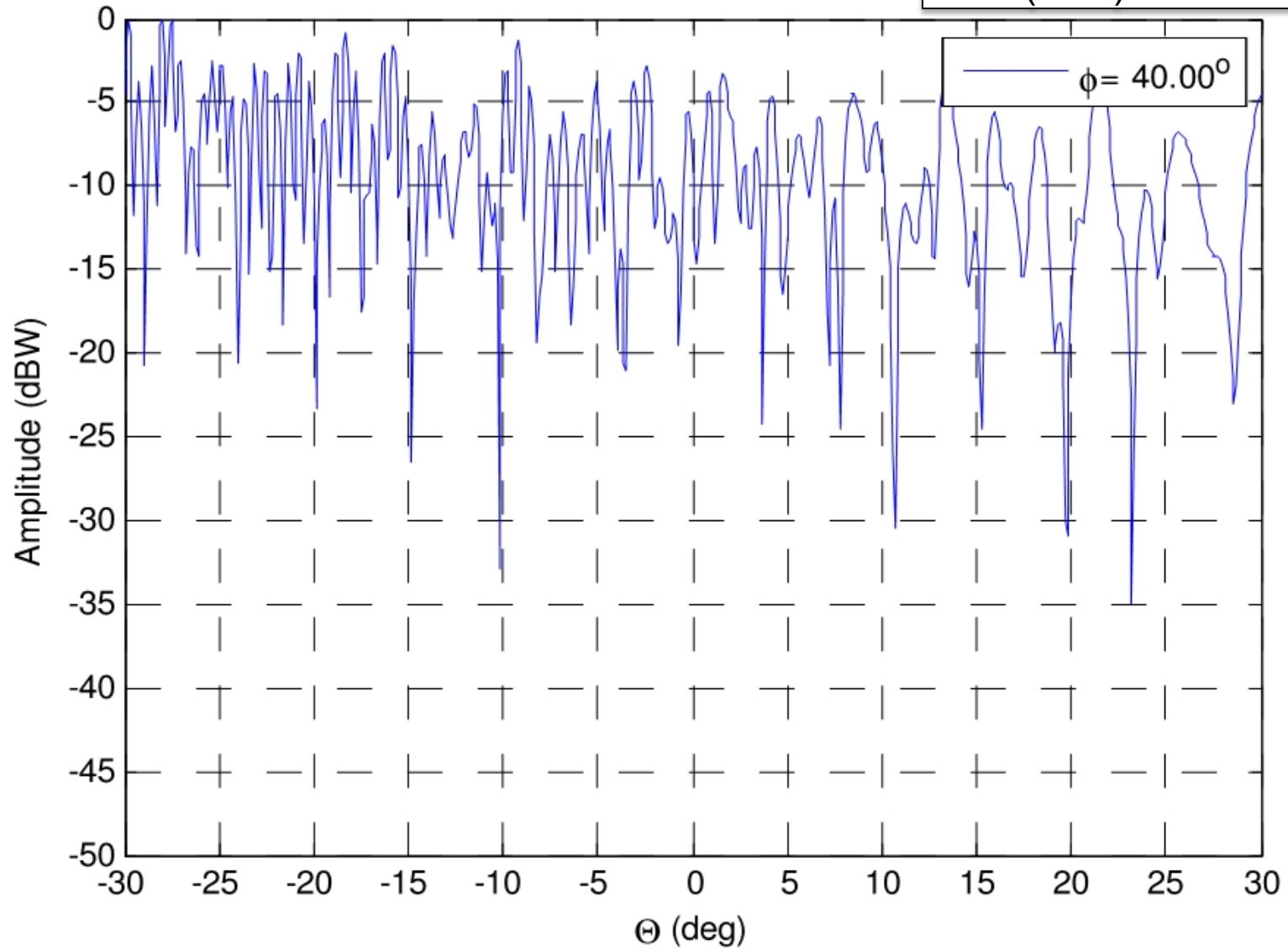
Normalized pattern cuts - farfield

Input file: tx-17.7-lhcp-30.cut, Peak: 1.55 dBW, EIRP (max) = 60.2 dBW



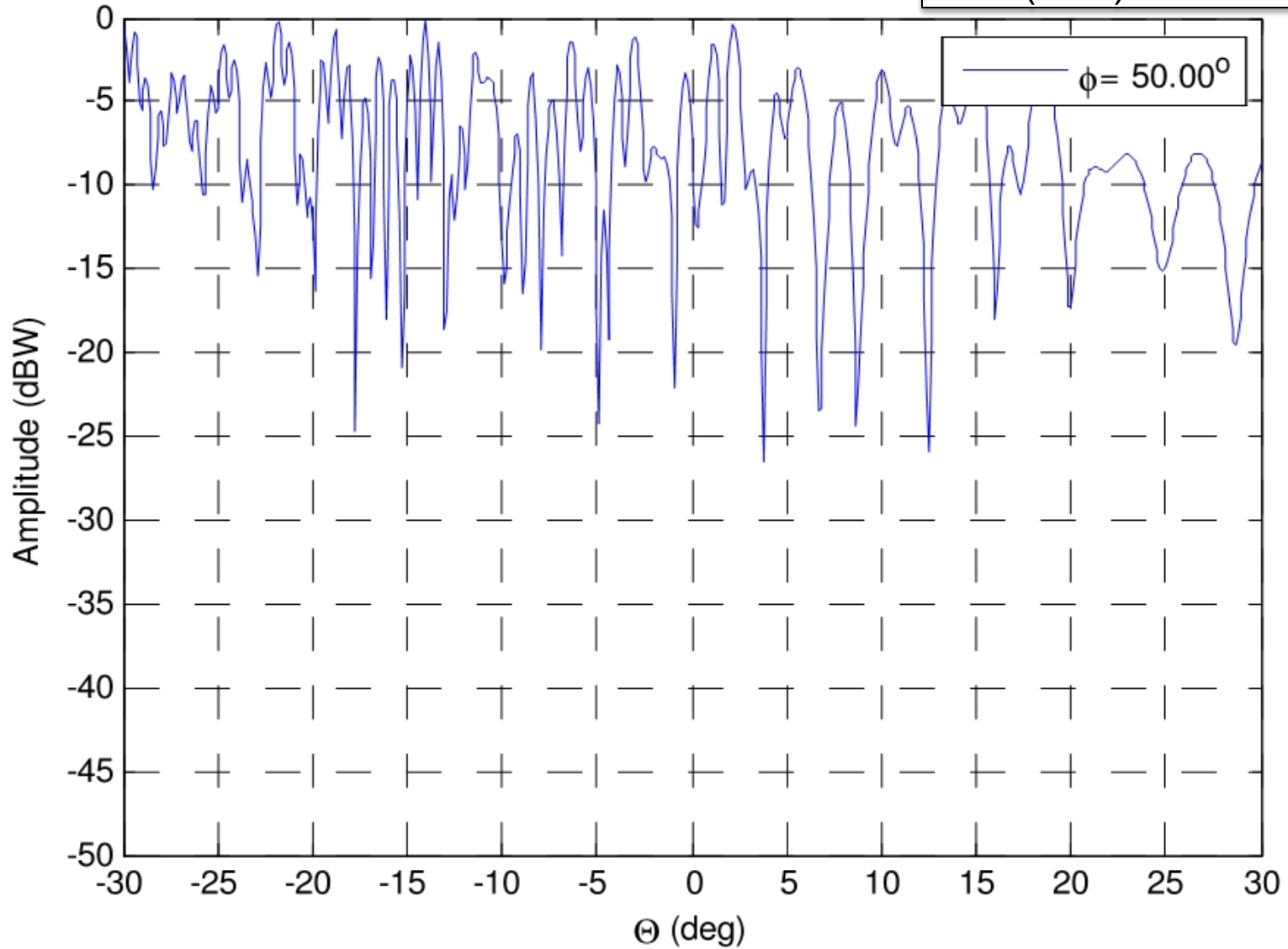
Normalized pattern cuts - farfield

Input file: tx-17.7-lhcp-40.cut, Peak: -0.16 dBW, EIRP (max) = 60.2 dBW



Normalized pattern cuts - farfield

Input file: tx-17.7-lhcp-50.cut, Peak: -2.23 dBW, EIRP (max) = 60.2 dBW



Normalized pattern cuts - farfield

Input file: tx-17.7-lhcp-60.cut, Peak: -1.69 dBW, EIRP (max) = 60.2 dBW

