SimpleCalc HPBW Measurement Report

Generated 2026-07-07 21:30:13 - Peak value found at 2026-06-25 11:44:18

Azimuth-drift scan (antenna azimuth fixed, sun drifts by in azimuth, antenna tracks elevation)

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Frequency:            1296 MHz
Cold sky level:       -60.79 dB
Peak level:           -43.38 dB  at Az 140.19°  El 52.8°   Time: 2026-06-25 11:44:18
Sun noise (Y-factor): 17.41 dB

Left  -3 dB at Az: 137.51°   (sky offset 1.64°)
Right -3 dB at Az: 142.91°   (sky offset 1.62°)

True HPBW:           3.21°     [sun FWHM 0.60° at 1296 MHz]
Gain (theoretical):  36.0 dBi   [lossless beam]
Gain (~65% eff.):    34.2 dBi   [typical real dish]
Gain (~50% eff.):    33.0 dBi   [conservative estimate]

-10 dB level:        -52.72 dB  [(S+N)/N corrected]
BW10 (measured):     9.33° (az) -> 5.65° (sky)
Ratio BW10/HPBW:     1.73

Station / receive chain (from G/T screen):
   Antenna gain:         34.00 dBi          Antenna ohmic loss:   0.05 dB  (3.36 K)
   SFU @ 1296 MHz:       90.1               Ta:                   33.00 K
   Line 1 loss: 0.20 dB (13.67 K)           LNA1 NF/Gain: 0.15 dB (10.19 K) / 33.20 dB
   Line 2 loss: 7.00 dB (1163.44 K)         LNA2 NF/Gain: 0.00 dB (0.00 K) / 0.00 dB
   Line 3 loss: 4.16 dB (465.78 K)          RX/Radio NF:  4.00 dB (438.45 K)
   Overall NF/temp: 0.89 dB (65.66 K)       Receiver NF/temp: 0.413 dB (28.96 K)
   Expected Y-Sun level: 17.33 dB
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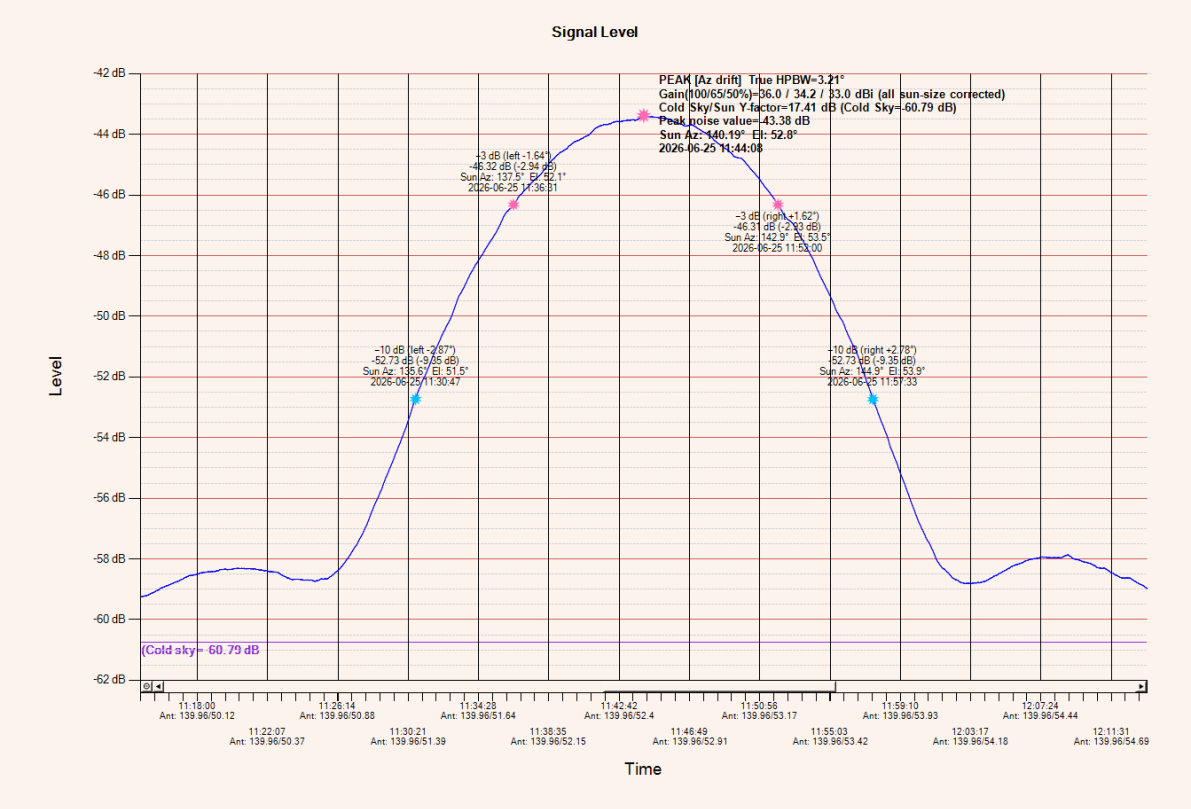
Comment:

RFG was set to -4 dB to prevent compression of sun noise.