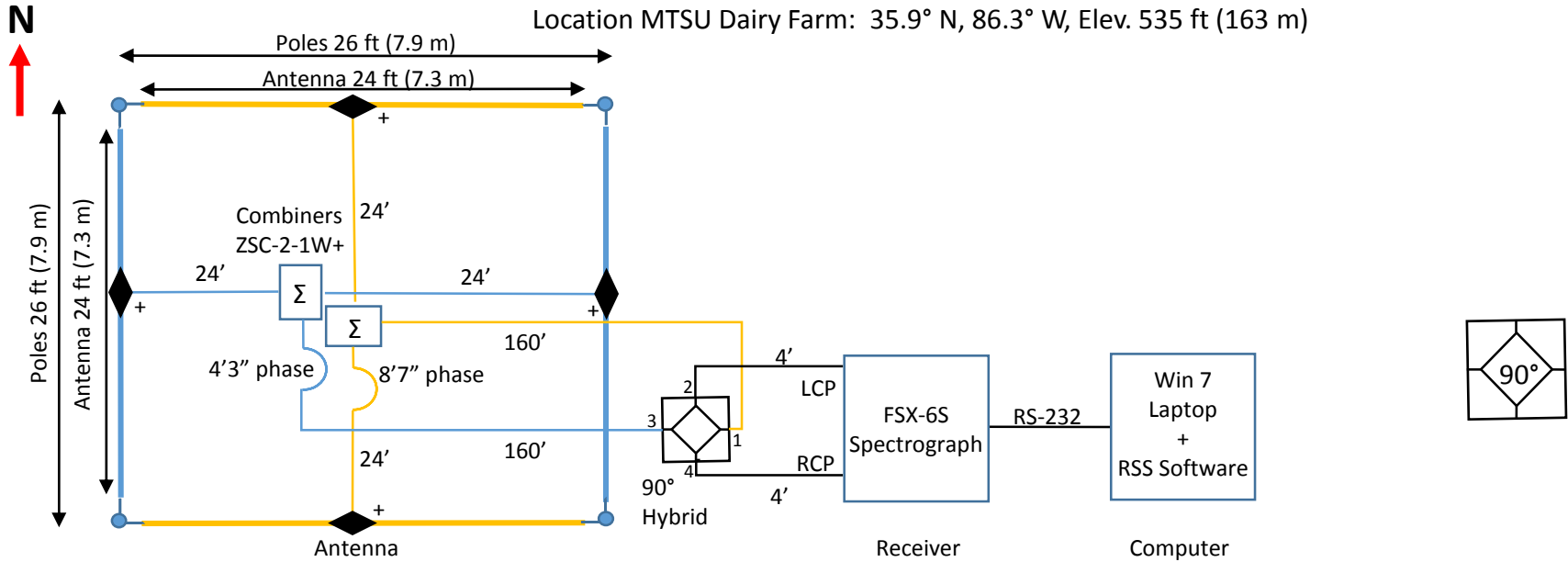


MTSU Radio Spectrograph System Diagram

Location MTSU Dairy Farm: 35.9° N, 86.3° W, Elev. 535 ft (163 m)



Measured Path Loss

Component	Loss (dB)	Cumulative Loss (dB)
Antenna 16:1 balun	0.60	0.60
24 ft coax feed lines (4 in parallel)	0.28	0.88
Combiners ZSC-2-1W+ (2 in parallel)	0.21	1.09
30° S zenith angle phasing	0.10	1.19
160 ft coax (2 in parallel)	1.16	2.35
90° Hybrid DQK-701B	0.29	2.64
Total Feed System Loss to Receiver		2.64

Hardware

- Antenna: Square 24 ft TFD array, 16:1 balun, 800 Ω terminator
- Antenna Feedline Coax: Belden 8259 RG-58, 24 ft (Loss = 0.28 dB)
- Antenna Phasing Coax: Belden 8259 RG-58, 8.5 ft (Loss ≈ 0.1 dB)
- Receiver Feedline Coax: LMR-400, 160 ft (Loss = 1.16 dB)
- Combiners: Mini-Circuits ZSC-2-1W+ (Loss = 0.21 dB)
- 90° Hybrid: DQK-701B (Loss = 0.29 dB)

Calibration Flowchart

