

Glideslope Diplexer Testing

NTSB Accident No: CEN15FA190
Location (City, State): Bloomington, IL
Aircraft Make/Model: Cessna 414A
Aircraft Registration: N789UP

Component: Dorne & Margolin Glideslope Diplexer
p/n DM H24-1
s/n 4699

Participants: Andrew Todd Fox – National Transportation Safety Board (NTSB)
Doug Mall – JA Air Center, Avionics Supervisor
Harold Wallin – JA Air Center, Avionics Technician

On March 29, 2017, the glideslope antenna, the coaxial cable between the antenna and the diplexer, and the diplexer were hand delivered by the NTSB IIC to JA Air Center, located at the Aurora Municipal Airport (ARR) near Sugar Grove, Illinois. The electrical properties of the glideslope signal diplexer were subsequently evaluated during a bench test. No repairs were made to the crimped portion of the coaxial cable that normally connected the glideslope antenna to the glideslope signal diplexer. A glideslope source signal of 92 decibels (dbm) was transmitted by the test bench through the coaxial cable that was connected to the diplexer. The signal level was measured after it passed through the diplexer at the two output connectors. During the bench test, the diplexer split the original source signal into two signal paths which measured 89.8 dbm and 88.8 dbm for glideslope 1 and 2, respectively. According to the bench technician, the observed differences between the source and output signals was normal and would not have affected glideslope signal transmission to the Garmin 530W and Garmin 430W that were located downstream of the diplexer. The operational bench test revealed no anomalies with the glideslope signal diplexer and, although damaged during impact, the coaxial cable remained capable of transmitting a strong glideslope signal to the diplexer.