Data Downlink Ground Station AD-DLGS

Online Display of Flight Inspection Data for NAVAID Technicians

Purpose of the Equipment

The purpose of this equipment is the visualization of Flight Inspection Data on ground during inspection of navigation aids (NAVAIDS). The equipment provides graphical visualization of Flight Inspection Parameters, that are transmitted via a data link from the AeroFIS® installed in the Flight Inspection Aircraft. Especially during commissioning of Instrument Landing Systems, VORs or DMEs it is a very helpful tool for improving communication with NAVAID technicians. The effect of NAVAID adjustments is directly indicated to the NAVAID technicians on ground. The communication between the Flight Inspector on board and the NAVAID technicians on the ground is improved tremendously.

Theory of Operation

During calibration measurements, the AeroFIS® installed in the Flight Inspection Aircraft transmits Flight Inspection Parameters via an on-board data downlink telemetry modem. On ground the signals are received by an antenna, connected to a receive data link telemetry modem. The modem provides the data to a Visualization Computer (ruggedized notebook). The Visualization Computer runs software for graphical visualization of the received data. The Visualization Computer is steered by the airborne AeroFIS®; no operation on ground is required → no special training of NAVAID technicians required!
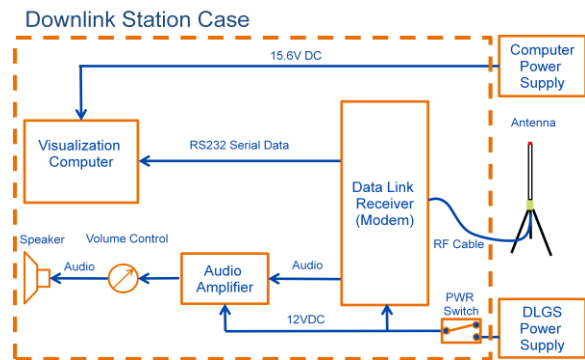

Figure 1: Ground Station Case

Figure 2: Block Diagram

Equipment

The equipment is based on the following:

Ground Station Case containing:

- Visualization Computer
- AC power supply for Visualization Computer
- AC Power supply for DLGS
- Data Link Modem
- Audio Amplifier and Speaker
- Quick User Guide

Accessories containing:

- Data Link Antenna,
- Tripod
- RF-Cable

The DLGS is typically set up in the shelter of the NAVAID to be calibrated. The equipment is connected to AC power and to the telemetry antenna placed on a tripod outside of the shelter.

The required operation is the only required operation to switching on the equipment and starting the DLGS software on the Visualization Computer. During the flight inspection approach the display on the ground is mirroring the data recorded from the Flight Inspection System. Whenever the operator on board the aircraft starts a new measurement, the corresponding graphics are also displayed on the ground.

During the phases where no run is active on board the aircraft, the AeroFIS® just sends messages to inform the ground about the data link status. If no data can be received from the aircraft a corresponding warning is displayed on the ground. Typical range of the data link is 40 NM within line of sight.

An integrated speaker can be switched on, which allows listening to the typical digital telemetry data burst audio for data link diagnosis.

Data Downlink Software

For each run that is started on board the Flight Inspection Aircraft a new set of graphics is provided by the ground station. The scaling and selection of parameters displayed on ground is according to the current flight inspection program on board, no software operation is required on ground. Nevertheless the software on the DLGS provides:

- Zoom in/out of graphics
- Measure with graphics
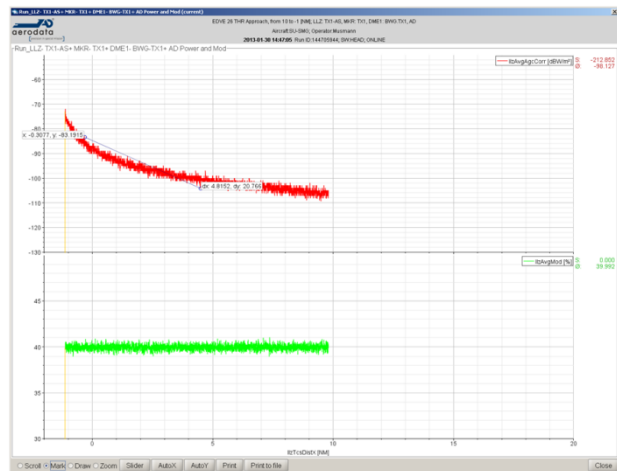- Recall graphics of previous runs

Figure 3: Example Graphic of DLGS

Each graphic provides a header with information about the current measurement like:

- Profile Information
- Operator and Aircraft call sign
- Run Number

Solution for Your AeroFIS®

Every AeroFIS® can be upgraded to include the Data Downlink option. An additional data downlink telemetry modem will be installed in the console. Various options for downlink antenna exist. Please contact your product support for details.

Dimensions and Weight

Dimensions of DLGS case (W x H x D)	530mm x 430mm x 220 mm
Approx weight of DLGS case	11kg

Contact:

Aerodata
Hermann-Blenk-Str. 34-36
D- 38108 Braunschweig
Germany
Tel.:+49 - (0)531 - 2359 - 0
E-Mail: fis@aerodata.de
Internet: www.aerodata.de