User manual

Introduction

The LAUR (Line acquisition radio unit) is used as an element of an LRU relay cell. It can be inserted anywhere in a seismic line to collect the data from FDUs on either side of it, and relay the data to the associated LRU.

Figure 1 LAUR

Built in the LAUR is a full performance LAUL, optimizing the deployment of field hardware.

Operating in a relatively low radio frequency band (215 MHz to 250 MHz), it can be used in difficult areas. The user can choose between various configurations, depending on the required data rate and on the expected transmission range.

Using a handheld terminal as a Field Deployment Aid, the radio link can be set up adequately prior to connecting the LAUR to the seismic network. The parameter settings can also be changed through the HCI workstation.

NOTE: The available frequency band depends on the regional settings chosen by the user when installing software on the HCI workstation and on the handheld terminal. For compliance with Canadian and US communications regulations, the frequency band is limited to respectively:

- Canada: 217 to 218 MHz and 219 to 220 MHz.
- USA: 216 to 217 MHz and 218 to 219 MHz.

Typical setup

CAUTION

If you wish to test a radio relay cell through a wireline link between the coaxial connectors of the LRU and the LAUR, use a 60 dB (minimum), 20 W attenuator.

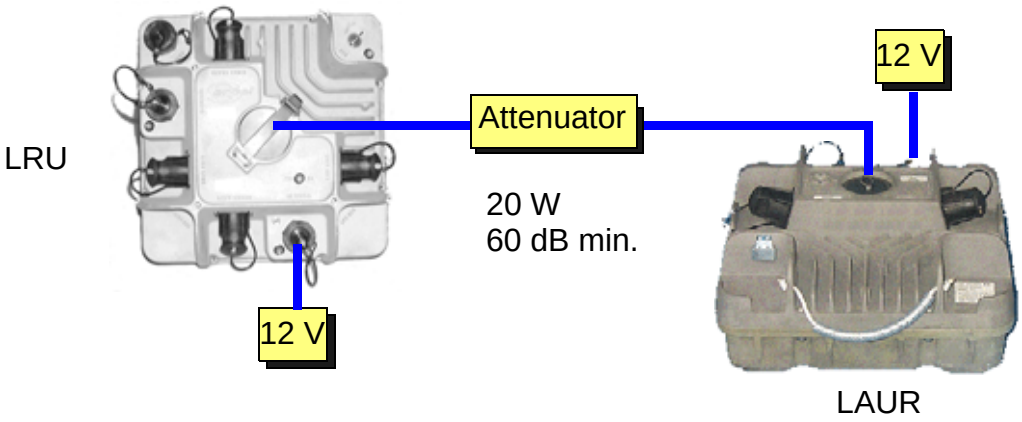

Figure 2 Test setup

CAUTION

Antenna height is limited to 6.1 metre near airports.

Do not raise any antenna near electric power distribution lines!

WARNING

LAUR antennas should be kept at least 10 m away from any FDU.

Basic radio cell

Below is a typical example of setup along with the associated specifications in terms of covered range and transmission capacity.

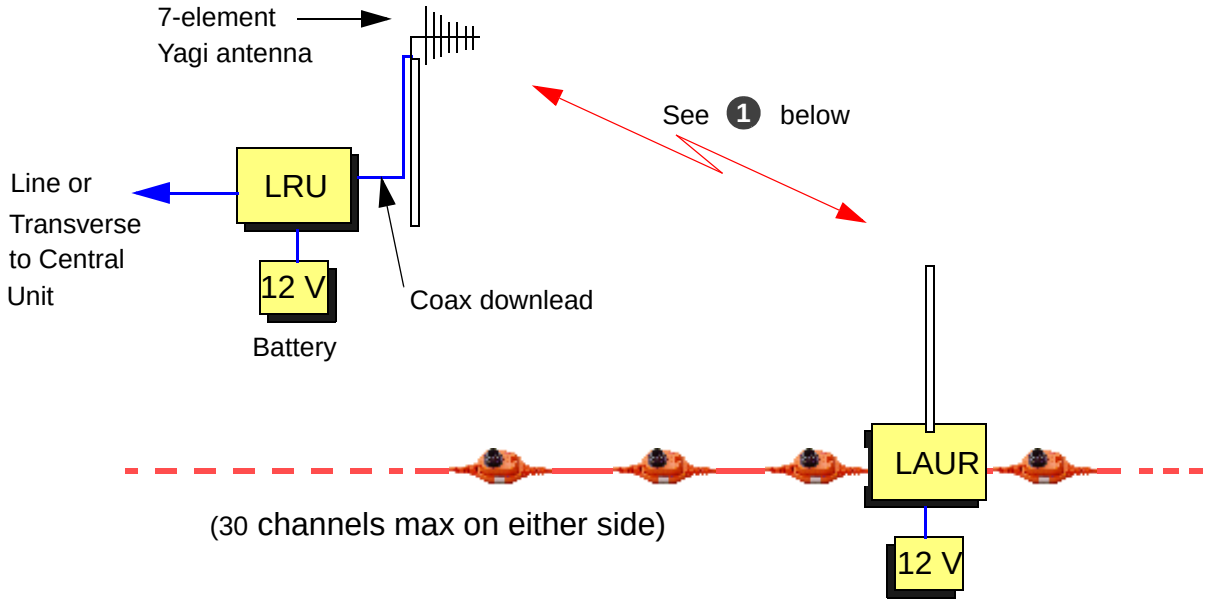

Figure 3

❶ Typical performance (Ground-Wave propagation above flat terrain):

- Short Range: 2 km to 3 km, 60 Ch @ 2ms , Real time, using 2.5-m high LRU antenna.
- Medium Range: 3 km to 8 km, 60 Ch @ 2ms, Real time, using 8-m portable LRU antenna mast.
- Long Range: 8 km to 16 km, 60 Ch @ 2ms, Real time, using 30-m LRU antenna mast.

See **CAUTION** on page 2.

Specifications

LAUR

- Functions
  - Management of FDUs and wireline data acquisition;
  - Radio data transmission to LRU base station with error recovery and temporary storage;
  - 48V wireline power supply.
- Memory
  - 32 MB local buffer for non-real time transmission mode;
  - 32 MB non-volatile memory for local storage of acquiredchannels.
- Ports: Ethernet 10/100 Mbps compatible.
- RF Frequencies
  - USA: limited to 216 to 217 MHz and 218 to 219 MHz;
  - Canada: limited to 217 MHz to 220 MHz, restricted to remote area.
  - Other countries: compliance with local regulations.
  - Overall capability: 215 MHz to 250 MHz.
- RF Output Power
  - RF power management;
  - 1W to 6 W, nominal.
- RF Output Impedance: 50 Ω.
- Emission Designators: 200KD1D and 800KD1D.
- Maximum number of FDUs per LAUR: 60 with up to 110 m interval.
- Maximum number of FDUs between LAURs (wireline): 30 with up to 110 m interval.

- Power
  - Operating Power Voltage: 10.5 to 15 VDC, 2 battery connectors (allowing uninterrupted operation during battery replacement).
  - Power Consumption:
- Physical specifications
  - Material: Aluminium.
  - Size: 380x380x170 mm (15x15x7 in.).
  - Weight: 12.250 Kg.
- Environmental specifications
  - Operating Temperature: -40° to +70°C.
  - Storage Temperature: -40° to +70°C.
  - Water Depth: 1 m, operating.

OWFD1.5 antenna

- Electrical specifications
  - Single band, 215 to 250 MHz, no tuning required.
  - Impedance: 50 Ω.
  - VSWR: < 1.5.
  - Gain: 0 dBd, tilt 0°.
  - Polarization: vertical.
  - Pattern: omnidirectional, ripple < 1dB.
  - No ground plane required, apart from LAUR housing (380x380x150, aluminium, lying flat on the ground).
  - Static electricity dissipation to ground.
  - Connection: N-type connector, male, modified.
  - Max input power: 40 W.
- Physical specifications
  - Operating temperature: -40 to + 70°C.
  - Height: 1.68 m (66 inches).
  - Sealing: IP 66 standard (antenna connected).
  - Salt spray resistant.
  - Withstands 80 km/hr wind.