



TECHNICAL SHEET

ACOUSTIC

FULL WAVE

FWS

Generalities

Principle

A piezo-electric transmitter stimulated by a high-voltage pulse radiates a high-frequency acoustic wavelet. This is coupled via the borehole fluid and formation to each receiver. The probe records the full sonic wave train at all receivers simultaneously.

Result

VDL, formation compressional velocity (slowness), time of first arrival (Δt).

Interest

Estimation of the mechanical properties of the rock (with compressional and shear slowness and bulk density), spectral analysis, sonic amplitude and attenuation measurements, density and porosity estimation, fracture location etc...

Option

Natural gamma sensor, shear velocity (slowness), mechanical moduli (with bulk density).

Constraints / borehole

- | | | | |
|-----------------|---|---|--|
| filling up | : <input checked="" type="checkbox"/> water | <input checked="" type="checkbox"/> mud | <input type="checkbox"/> dry |
| casing | : <input type="checkbox"/> PVC | <input type="checkbox"/> steel | <input checked="" type="checkbox"/> open |
| borehole | : <input checked="" type="checkbox"/> cored | <input checked="" type="checkbox"/> destructive | |
| max. depth | : 2000 m | | |
| effective diam. | : 70 mm – 400 mm | | |
| temperature | : 0 - 70 °C | | |
| max. pressure | : 200 bars | | |

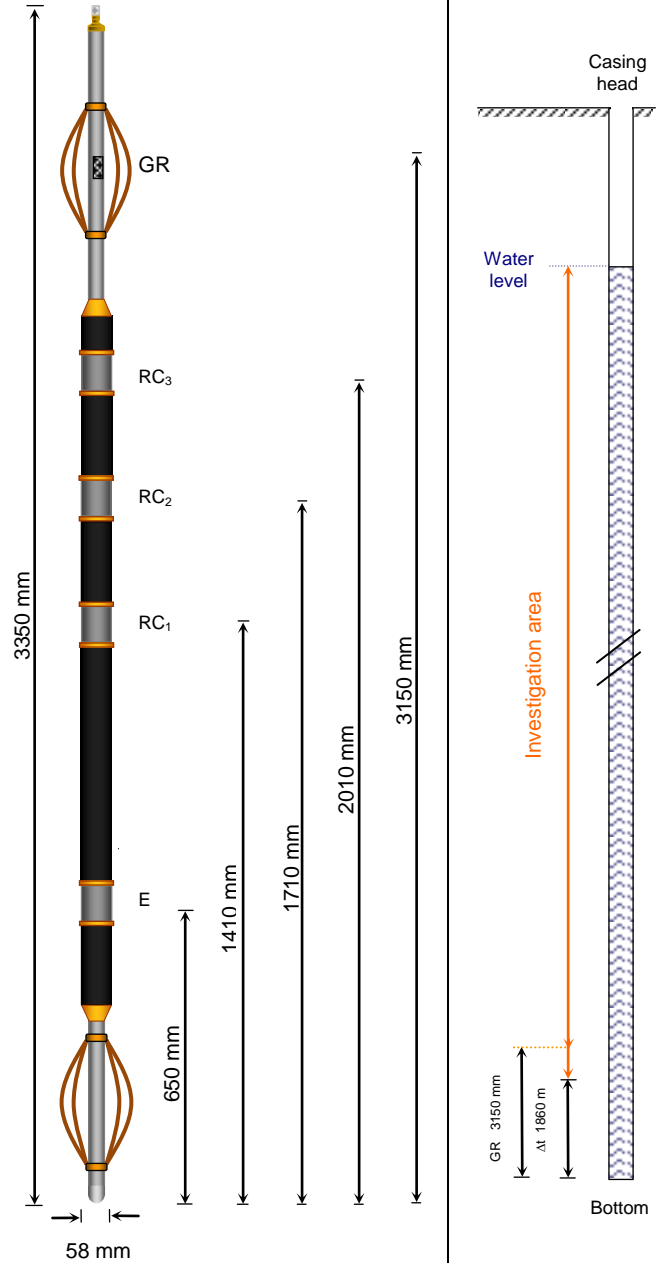
Technical specifications

Dimensions

- length : 3350 mm
- diameter : 58 mm
- weight : 25 kg

Elements

- 1 emitter (14 kHz) : E
- 3 receivers (2 ft, 3 ft and 4 ft) : RC₁, RC₂, RC₃
- 1 natural gamma sensor : GR



Records / Measures

Records

- Tool : centered off-centered
- Measure : down up
- Rec. speed : 8 m/min
- Sampling : 5 cm (spatial) ; 4 μ s (temporal)

Measures

- P range : 40-200 μ s/ft - 1500-7500 m/s
- S range : 80-200 μ s/ft - 1500-3800 m/s
- Resolution : 0.25 μ s
- Vert. resolution : 30 cm
- Accuracy : 0.5 to 2 % of the measure



Example

