



Cross Hole Analyzer CHAMP-XV compliance statement for ASTM D6760 September 2015

(Items referenced by the ASTM D6760 document numbering)

Item	Description	Requirement	Compliance
4.2	Probe pulses	Generated frequently	Up to 30 pulses per second
4.2	Output signal storage	To be saved	Pulses are saved and can be reprocessed.
4.3	Signal & result presentation	Signals modulated, signals (arrival & energy) processed and presented	Processed and presented as required versus depth
6.3.1	Probes	Test within 125mm of hole bottom	Typically 75 to 100 mm depends on weights
6.3.1	Probes	Pressure test to 150% of max test depth	All probes pressure tested to 14 bar (equivalent to 140 m depth; 460 ft) in pressure chamber
6.3.2	Transmitter	Frequency >30 kHz	Frequency >40 kHz
6.3.3	Receiver	Matched to transmitter	Transmitter & Receiver probes have matched frequencies
6.3.5	Cables	Temperature range	-40 to +80 °C
6.3.5	Cables	Durability	Extremely tough heavy duty polyurethane outer jacket deployed over pulleys
6.3.5	Cables	Watertight connectors	O-ring sealed; tested in pressure chamber
6.3.6	Probe depth accuracy	Avoid slippage	Smooth deployment over pulleys prevents slipping
6.3.6	Probe depth accuracy	Known at all times	Encoder accounts for travel



			in either up or down direction, position depth known at all times
6.3.6	Probe depth accuracy	Within 1%	Good practice and calibration adjustment results in accuracy within a 1% interval
6.4.1	General design	Rugged	High impact case Rugged electronic parts
6.4.1	Signal sampling	By depth or time	High frequency sampling; each sample noted with depth
6.4.1	Signal Gain	Adjustable	User selected and known
6.4.2	Recording	Min 12 bit A/D resolution	12 bit A/D converter
6.4.2	Sampling frequency	>250 KHz	500 to 2,000 KHz user selectable
6.4.2	Data storage	Signals and information	Stores raw signals; each depth with complete information
6.4.4	Data display	Display raw signals	Signals displayed for each selected depth, either during acquisition or reprocessing
6.4.4	Data display	Display processed result	Results displayed, during acquisition or reprocessing
7.4.4	Access Tubes	Documentation	Tube lengths and spacings are stored with data
7.5.3	Depth reference	Zero values	Depth can be zeroed at either top or bottom of tubes
7.5.5	Transmitter power	Adjustable	User selectable
7.5.5	Receiver gain	Adjustable	User selectable
7.5.6	Pulling speed	Maximum rate	At typical 30 Hz generation and 50 mm test depth sample can pull at up to 1.5 m/sec



Quality Assurance for Deep Foundations

7.5.6	Pulling speed	No loss of data	Missed data causes warning; User can lower probe again and repeat at slower pull rate to assure no missed samples
7.5.6	Probe levels (Note 4)	Parallel or variable	Two depth encoders allow independent measurement of probe depths
7.6	Single tube tests	Applicability	Can be used with both Probes in single access duct
7.7.1	Data quality	Assurance	User adjusted gain; adjustable data intensity view
7.9.1	Printed output	Graphical	Graphs vs. depth include first arrival time or wave speed, relative energy, "waterfall"
7.9.2	Printed output	Numeric	Automatically generated table for "defect analysis" from user arrival and energy input limits
7.9.3	Data smoothing	Maximum limits	Limited to max of 3 samples; If used, filter value printed