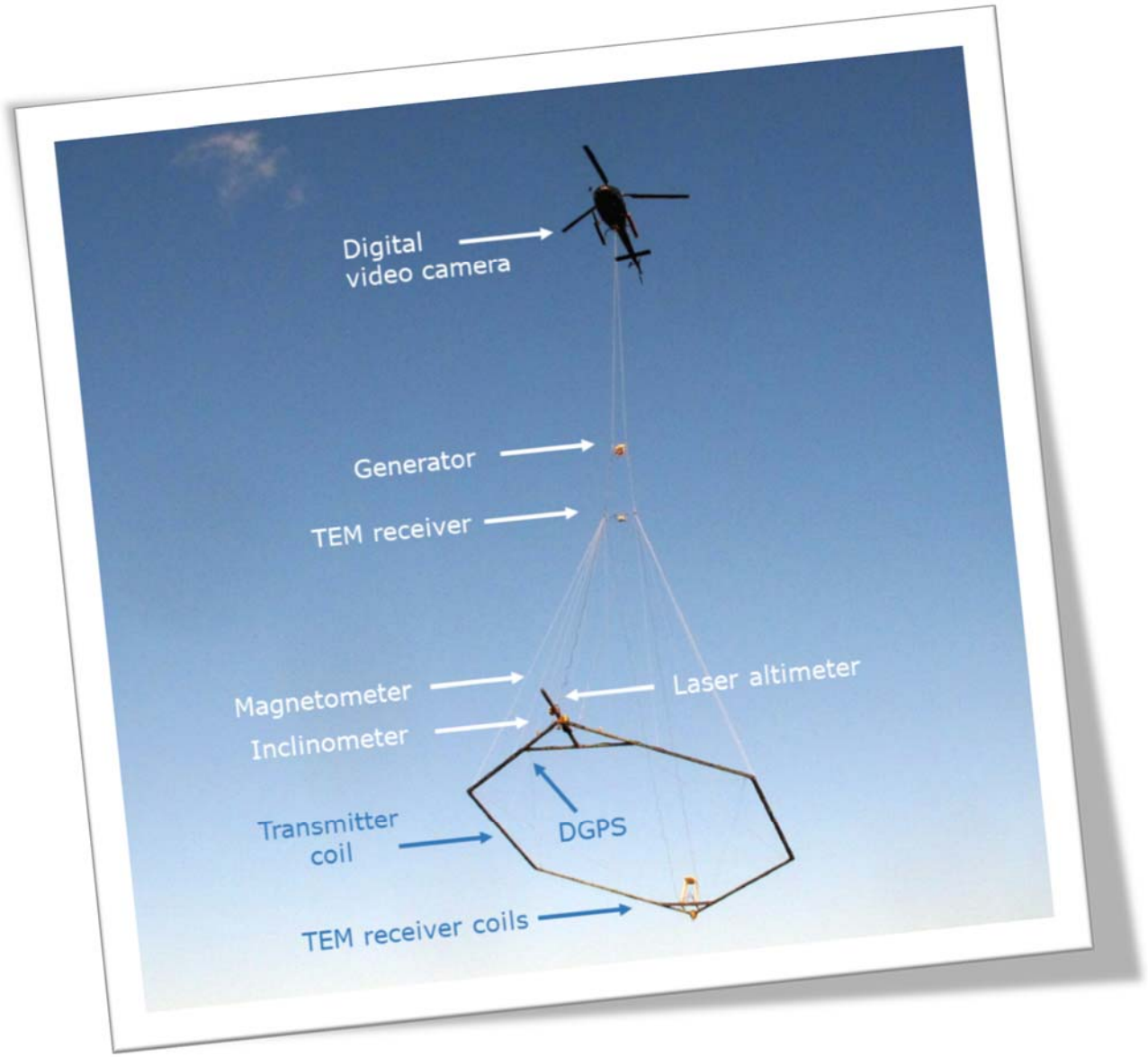
Appendix A

Specifications of the SkyTEM312 HP System
50 Hz



General Specifications

Total weight	630 kg / 560 kg
Length carrier frame	28 m
Width carrier frame	16.5 m
Length tow cable	35 m
Carrier frame	Rigid aerodynamic lightweight
Nominal terrain clearance	30-50 m above obstacles or hazards *)
Production speed on survey lines	80- 100 kph
Max airspeed ferry	150 kph
Max wind speed	10 m/s – if gusty wind or demanding terrain conditions the max wind will be reduced
Precipitation	Light precipitation can be accepted
Operational temperature	-30°C to +45°C

*) Dependent on terrain, weather conditions and pilot discretion. The EM carrier frame can be adjusted so that the helicopter speed can be reduced to suit terrain conditions and the pilot's ability to drape fly.

Transmitter

Electromagnetic system – SkyTEM Dual-Moment, Transient Electromagnetic (TEM) System.

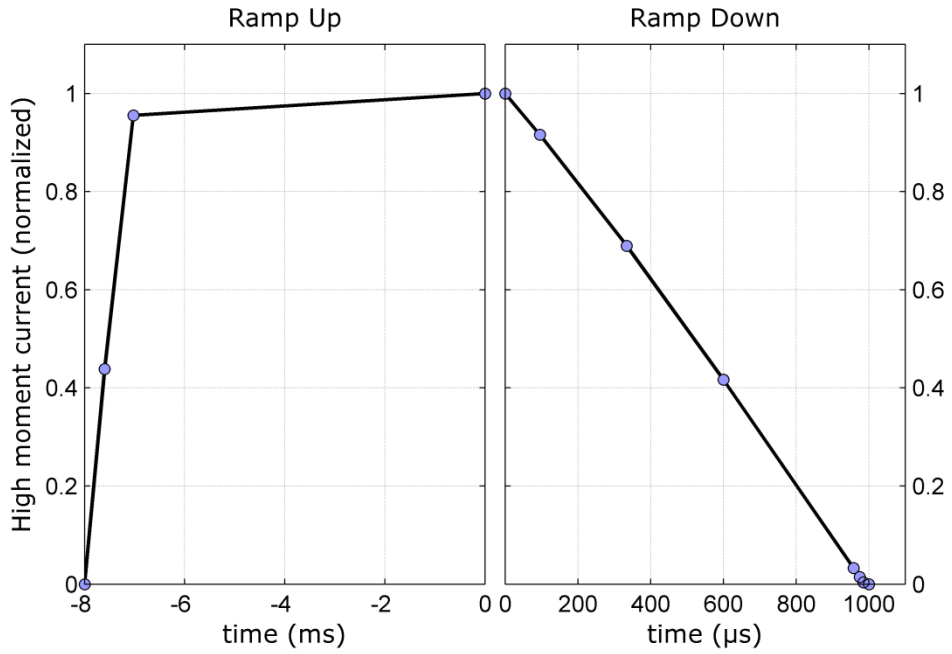
Parameter	HM mode
No of transmitter turns	12
Transmitter area per turn	337 m^2
Transmitter current	220 - 250 Amp *)
Transmitter dipole	Vertical
Peak moment	Up to 1,000,000 NIA
On time	8 ms
Off time	32 ms **)
Rep. frequency	12.5 Hz
Power supply	External DC generator. Part of the sling load. Placed at an appropriate distance from the TEM receiver and transmitter system to avoid noise and data bias effects.

*) The current is dependent on the outdoor temperature. The current will be reduced as the temperature goes up.

**) The system has customizable on times and repetition frequencies. These parameters can be modified while the survey is taking place.

Waveform

The figures below show the normalized waveforms for the high moment transmitter mode measured on the ground. Only the positive waveform is shown as the positive and negative waveforms are fully symmetrical. Note the significant difference in time scale between the Ramp Up (ms) and Ramp Down (µs) figure panels.



TEM receiver system

Common coil features	Shielded, optimally damped, multi-turn air cored loops, sensitive to dB/dt
Z coil frequency	40 kHz
X coil frequency	250 kHz
Effective area of Z coil	560 m^2
Effective area of X coil	115 m^2
TEM receiver bandwidth	300 kHz (customizable)

TEM gate times

The high moment signals are recorded using time gate averaging. The gate center times and gate averaging widths are shown in the tables below.

The gate center times refer to the end of the current ramp down. The high moment current ramp down is essentially linear and has duration of approximately 1,000 µs.

High moment	
Gate center time (µs)	Gate width (µs)
219.7	50.6
276.7	62.6
348.7	80.6
439.7	100.6
553.7	126.6
697.7	160.6
879.2	201.6
1107.7	254.6
1396.2	321.6
1760.2	405.6
2218.7	510.6
2797.2	645.6
3516.2	791.6
4396.2	967.6
5472.7	1184.6
6791.2	1451.6
8405.2	1775.6
10383.2	2179.6
12808.2	2669.6
15777.7	3268.6
19412.2	3999.6
23862.2	4899.6
28812.2	4999.5

The above gate time tables relate to the specific repetition rates shown in the Transmitter section. Repetition rates and gate timings are fully customizable and can be readily adapted to specific customer requirements.