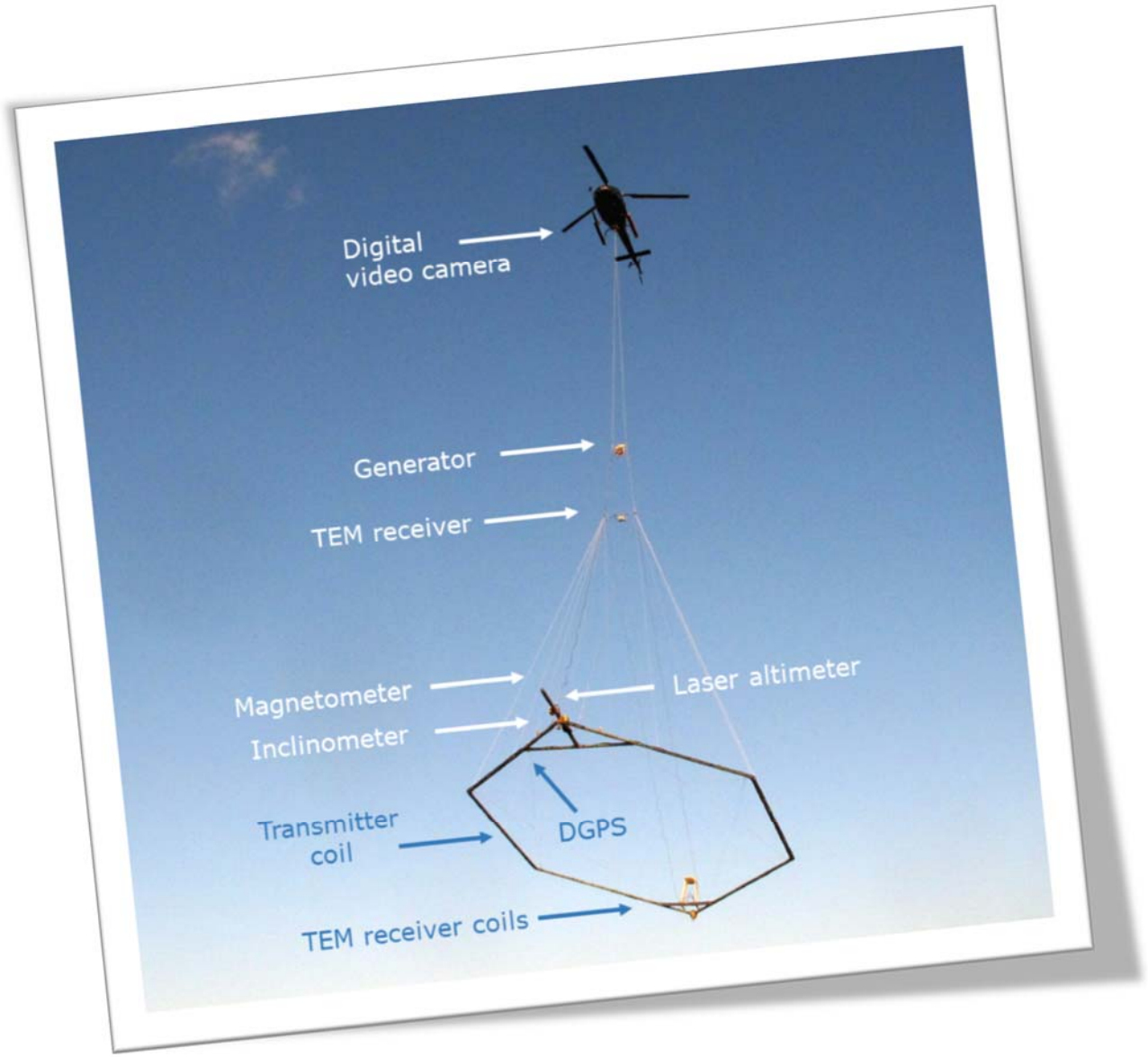
Appendix A

Specifications of the SkyTEM304 System
50 Hz



General Specifications

Total weight	550 kg
Length carrier frame	28 m
Width carrier frame	16.5 m
Length tow cable	35 m
Carrier frame	Rigid aerodynamic composite
Nominal terrain clearance	30 m above any obstacles or hazards *)
Production speed on survey lines	80-100 kph (optional fast flying up to 145 kph)
Max airspeed ferry	120 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.

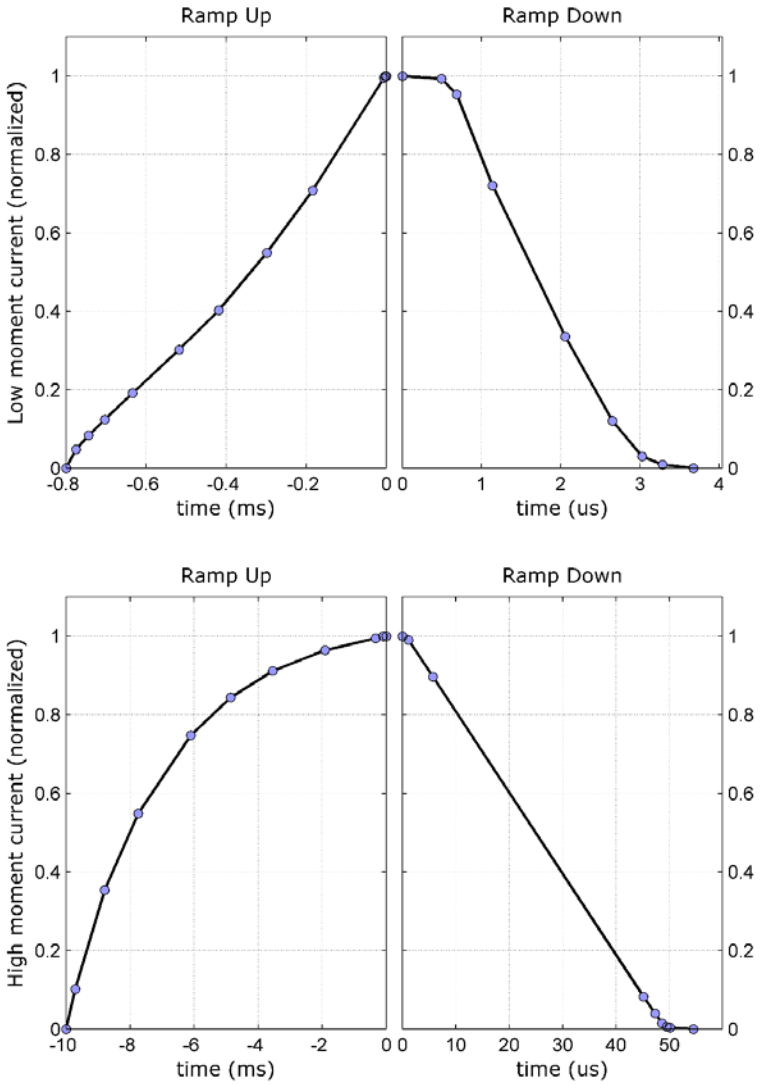
Parameter	LM mode	HM mode
No of transmitter turns	1	4
Transmitter area per turn	341 m^2	341 m^2
Transmitter current	~9 Amp	~110 Amp *)
Transmitter dipole	Vertical	Vertical
Peak moment	~3,000 NIA	Up to 150,000 NIA
On time	800 µs	10 ms
Off time	1018 µs	10 ms **)
Rep. frequency	275 Hz	25 Hz
Power supply	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 for both LM and HM modes. These parameters can be modified while the survey is taking place.

Waveforms

The figures below show the normalized waveforms for the low and high moment transmitter modes 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	210 kHz
X coil frequency	250 kHz
Effective area of Z coil	105 m^2
Effective area of X coil	115 m^2
TEM receiver bandwidth	300 kHz (customizable)

TEM gate times

The low moment and 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 for both moments. The high moment current ramp down is essentially linear and has a duration of approximately 50 µs. The shape of the low moment current ramp down is more complicated. We define its duration to be that of the equivalent linear ramp down having the same area. The equivalent linear ramp down has a duration of approximately 3.2 µs.

Low moment	
Gate center time (µs)	Gate width (µs)
5.0	1.6
7.0	1.6
9.0	1.6
11.5	2.6
15.0	3.6
19.5	4.6
25.0	5.6
32.0	7.6
41.0	9.6
52.5	12.6
67.0	15.6
85.0	19.6
107.5	24.6
135.5	30.6
171.0	39.6
216.5	50.6
273.5	62.6
345.5	80.6
436.5	100.6
550.5	126.6
694.5	160.6
876.0	201.6

High moment	
Gate center time (µs)	Gate width (µs)
70.2	15.6
88.2	19.6
110.7	24.6
138.7	30.6
174.2	39.6
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
2796.7	644.6
3525.7	812.6
4444.7	1024.6
5603.2	1291.6
7063.2	1627.6
8904.2	2053.6

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.