1.3 Performance

Parameter	Specification					
Receiver type	72-channel u-blox M8 engine GPS L1C/A, SBAS L1C/A, QZSS L1C/A, QZSS L1 SAIF, GLONASS L1OF, BeiDou B1I, Galileo E1B/C					
Accuracy of time pulse signal	RMS 99%	30 ns 60 ns				
Frequency of time pulse signal		0.25 Hz…10 MHz (configurable)				
Operational limits [1]	Dynamics	£ 4 g				
	Altitude	50,000 m				
	Velocity	500 m/s				
Velocity accuracy [2]		0.05m/s				
Heading accuracy [2]		0.3 degrees				
GNSS		**GPS & GLONASS**	**GPS**	**GLONASS**	**BeiDou**	**Galileo**
Horizontal position accuracy [3]		2.5 m	2.5 m	4 m	3 m	TBC[4]
NEO-M8N/Q						
Max navigation update rate	NEO-M8N	5 Hz	10 Hz	10 Hz	10 Hz	10 Hz
	NEO-M8Q	10 Hz	18 Hz	18 Hz	18 Hz	18 Hz
Time-To-First-Fix [5]	Cold start	26 s	29 s	30 s	34 s	45 s
	Hot start	1 s	1 s	1 s	1 s	1 s
	Aided starts [6]	2 s	2 s	2 s	3 s	7 s
Sensitivity[7]	Tracking & Navigation	–167 dBm	–166 dBm	-166 dBm	-160 dBm	-159 dBm
	Reacquisition	–160 dBm	–160 dBm	-156 dBm	-157 dBm	-153 dBm
	Cold start	–148 dBm	–148 dBm	-145 dBm	-143 dBm	-138 dBm
	Hot start	–157 dBm	–157 dBm	-156 dBm	-155 dBm	-151 dBm
NEO-M8M						
Max navigation update rate		10 Hz	18 Hz	18 Hz	18 Hz	18 Hz
Time-To-First-Fix [5]	Cold start	26 s	30 s	33 s	39 s	57 s
	Hot start	1 s	1 s	1 s	1 s	1 s
	Aided starts [6]	3 s	3 s	3 s	7 s	7 s
Sensitivity[7]	Tracking & Navigation	-164 dBm	-164 dBm	-163 dBm	-160 dBm	-154 dBm
	Reacquisition	-160 dBm	-159 dBm	-156 dBm	-155 dBm	-152dBm
	Cold start	-148 dBm	-147 dBm	-145 dBm	-143 dBm	-133 dBm
	Hot start	-157 dBm	-156 dBm	-155 dBm	-155 dBm	-151 dBm

Table 1: NEO-M8 performance in different GNSS modes (default: concurrent reception of GPS and GLONASS incl. QZSS, SBAS)

[1] Assuming Airborne < 4 g platform
[2] 50% @ 30m/s
[3] CEP, 50%, 24 hours static, -130 dBm, > 6 SVs
[4] To be confirmed when Galileo reaches full operational capability
[5] All satellites at -130 dBm, except Galileo at -127 dBm
[6] Dependent on aiding data connection speed and latency
[7] Demonstrated with a good external LNA