

**Date:** 7th March 2018

**Place:** Lake Como

**Witness:** Alex Exarheas, Datron Technology

**Equipment used:** 20Hz GPS speed measurement: Microsat R20-306

**Pilot:** Fabio Buzzi

**Data supplied as evidence:** CSV raw data, KML Google Earth file, screenshots, .exe copy of data

## Run 1:

Time: 13:40 GPS time

Test distance: M1M2- 1000.50m

**Avg speed: 280.04 km/h**

time 12.86125 sec

Minimum satellites: 7

## Run 2:

Time: 13:46 GPS time

Test distance: M3M4: 1000.47m

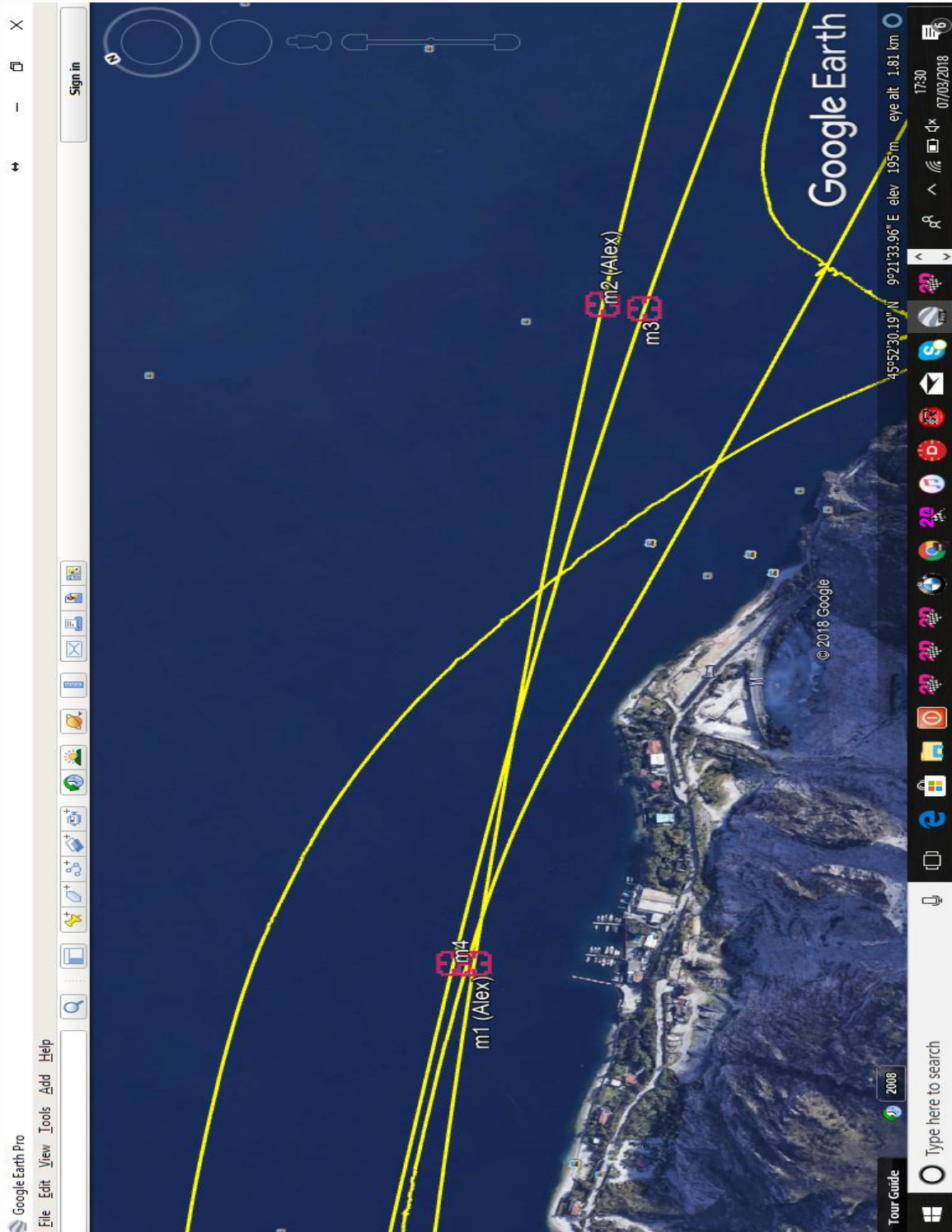
**Avg speed: 274.99 km/h**

time 13.09688 sec

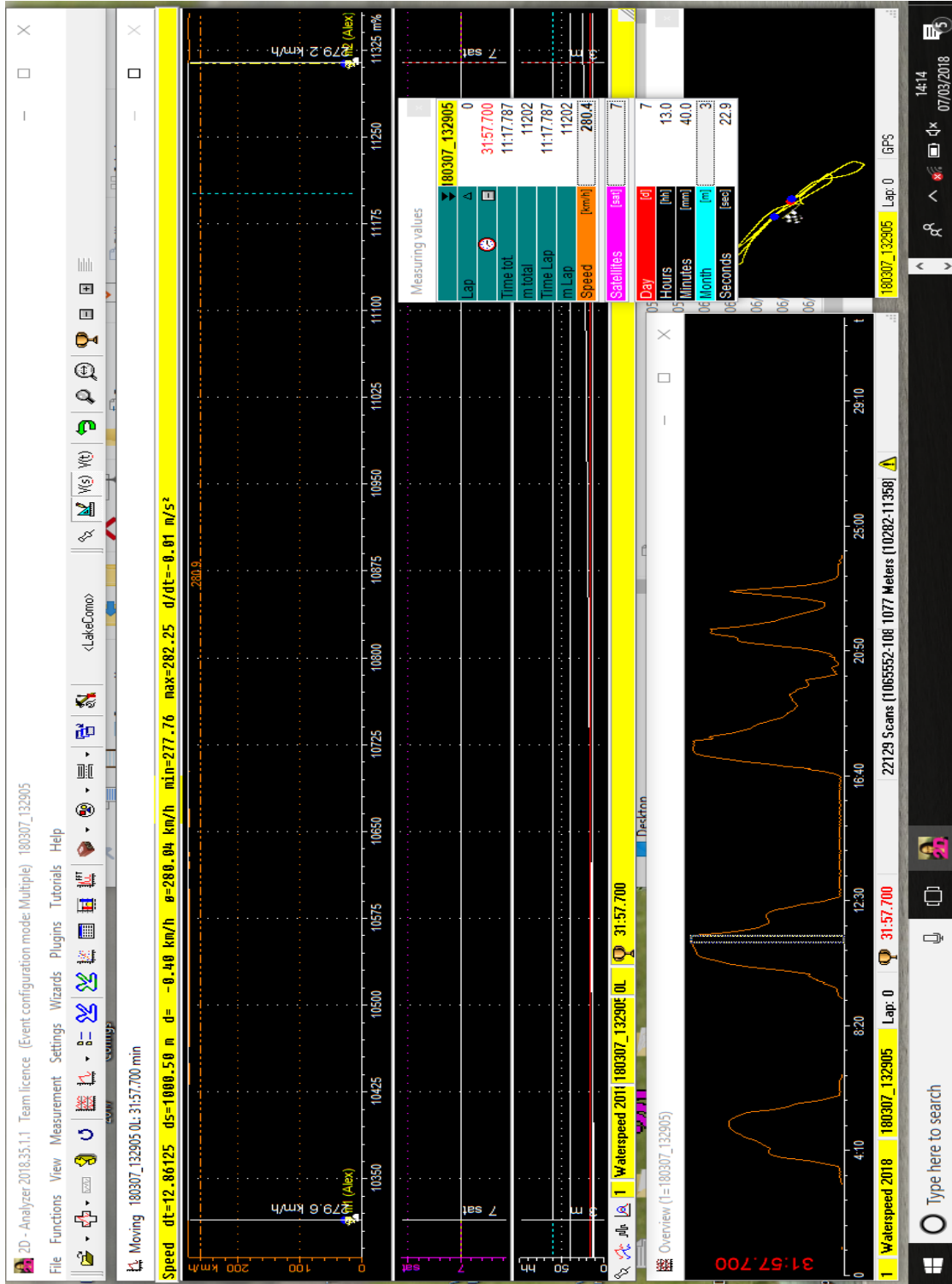
Minimum satellites: 7

Average speed between both runs: 277.515 km/h

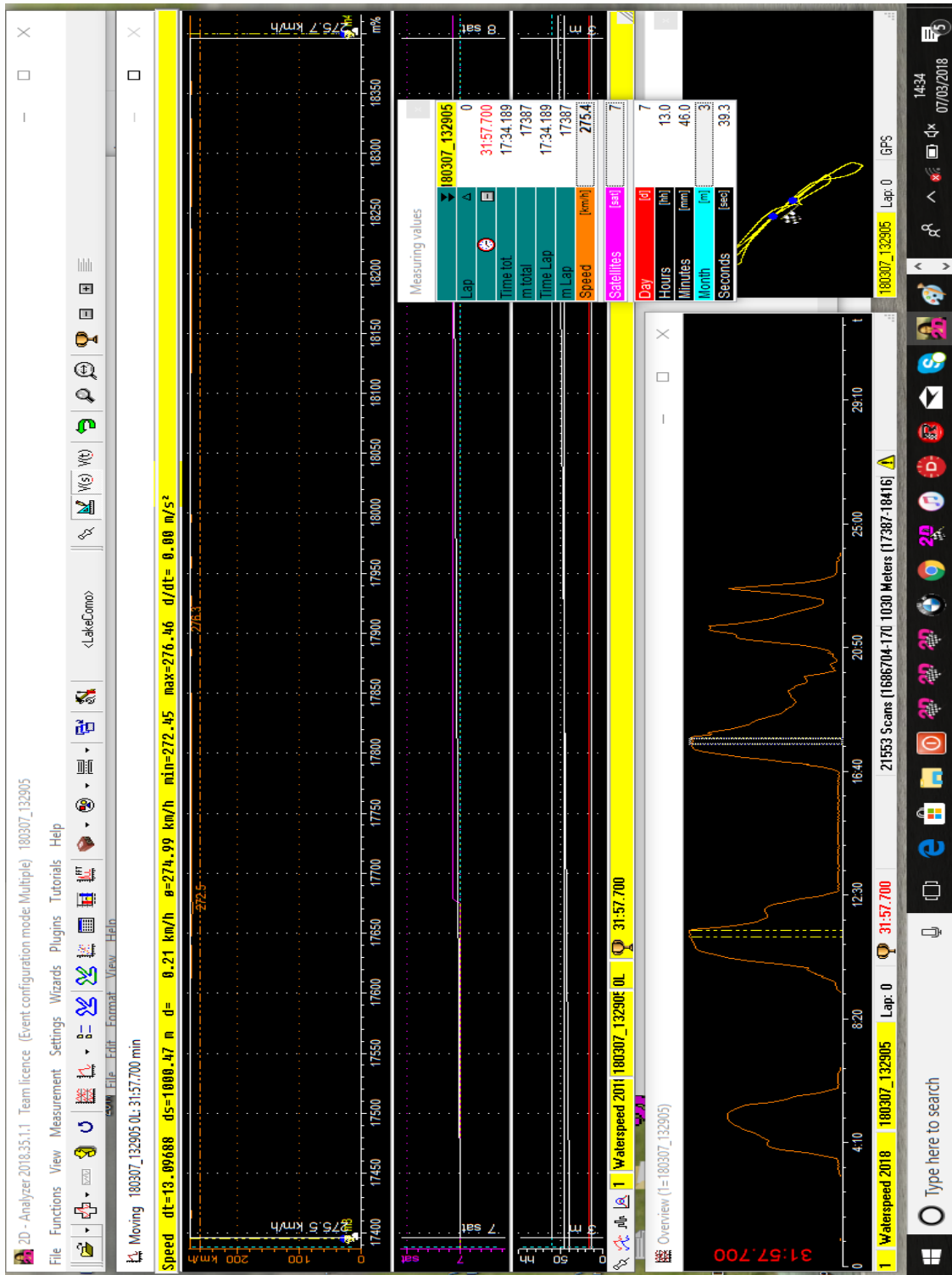
*Visualisation of markers m1-m2 one direction, m3-4 opposite*



Markers m1/m2



Markers m3/m4



## Calibration Certificate and Test Report

### Equipment under Calibration

Model                    MicroSAT R20  
 Serial Number         R20-306  
 Software Version      031104.77i

### Test Equipment Used

Procedure 77A0004B  
 Multimeter Metrix Multimeter, Serial: 199476CJH, Cal Date: 22/03/2017 Cert No: 47715  
 For satellite calibration information used see *Cal Date* in *GPS Calibration*.

### MicroSAT Configuration

Analogue Scaling      20 mV/kmh  
 Digital Scaling        400 ppm

### Analogue Speed Output

Measurement	Test Point	Measurement	Max Error	Result
0 km/h	0.000 V	0.0023 V	0.005 V	PASS
100 km/h	2.000 V	2.0010 V	0.005 V	PASS
200 km/h	4.000 V	4.0001 V	0.005 V	PASS
300 km/h	6.000 V	6.0028 V	0.005 V	PASS

### Digital Speed Output

Measurement	Test Point	Measurement	Max Error	Result
0 km/h	0.00 kHz	0 kHz	20 Hz	PASS
100 km/h	11.11 kHz	11.110 kHz	20 Hz	PASS
250 km/h	27.78 kHz	27.776 kHz	20 Hz	PASS
500 km/h	55.56 kHz	55.550 kHz	20 Hz	PASS

### GPS Calibration

GPSCAL.EXE - program to check calibration of Novatel GPS cards  
 Development ID: 031216.77p

Calibration Results - Calibration Software Version: 031216.77p

GPS Serial Number:        SVA03490150            GPS Software Ver:    2.322  
 GPS Model:                    3111R                    GPS Temperature:    23.0 degC

PRN	Cal Date	Elev	Obs	True Sp	Sp Err	Limit	Result
dd/mm/yyyy	(deg)		(km/h)	(km/h)	(km/h)		
7	15/08/2017	16.8	224	1223.4	-0.00	0.10	PASS
8	15/08/2017	23.3	224	2106.4	-0.00	0.10	PASS
10	15/08/2017	22.0	224	2340.9	0.01	0.10	PASS
16	15/08/2017	75.8	224	-382.0	-0.00	0.10	PASS
18	15/08/2017	37.1	224	1157.9	-0.01	0.10	PASS
20	15/08/2017	20.4	224	-1351.8	-0.01	0.10	PASS
21	15/08/2017	54.6	224	-1154.0	0.00	0.10	PASS
26	15/08/2017	51.5	224	-1632.0	0.01	0.10	PASS
27	15/08/2017	59.0	224	1173.3	-0.01	0.10	PASS

### Acceptance

The instrument complies with the acceptance conditions.

Tested by: John Grist

Date: 15 August 2017

The recommended recalibration period is 14 months after the calibration date.

**CAL Cert77A0004C-CC-0-081117**

**Datron Technology Ltd**