

# Test report summary

Tested for: Sentech Korea Corp  
21-6, Jimok-ro 75 beon-gil  
Paju-se Gyeonggi-do (10880)  
Republic of Korea

Tested by: MHF International Road Safety Test Lab  
Storgatan 3  
543 31 Tibro Sweden

Subcontractor: ICR Co, Ltd (International Certification Registrar Ltd)

Product name: ALX3000

Serial number: Handunit: ZAH670001, ZAH670002, ZAH670003, ZAH670004  
ZAH830001, ZAH830002, ZAH830003, ZAH830004, ZAHAU0001,  
ZAHAU0002, ZAHAU0003, ZAHAU0004  
Centralunit: YAH670001, YAH670002, YAH670005, YAH670004  
YAH830001, YAH830002, YAH830003, YAH830004, YAHAU0001,  
YAHAU0002, YAHAU0003, YAHAU0004

Test Standard: EN 50436-1:2014

Classification: 6.7 Electrical disturbances, class A  
6.9 EMC The tests according to the e-MARK 72/245/EEC as last  
Amended by ECE 10.05: E11 10R - 0510039  
8.1 Temperature cycles, code G  
8.3 Vibration testing ISO16750-3:2010 4.1.2.4, 4.1.2.8  
9.7 Type of protection: IP40  
14 Long term behavior (test) 12 month.

Test report no: 1210

Test results: **Approved** In all tests according to EN 50436-1:2014. With  
classification according to the specifications above.

**Tibro 2019-04-12**



**Tomas Jonsson**  
CEO



**Ph.D Lars Olov Sjöström**  
Quality leader

# Test report

Every test element has been performed according to approved standards and has been documented in the appendix. The result only applies to the tested objects. The result and the limitations of each test element are shown in this test report.

**Date:** 2019-04-12

**Tested for:** Sentech Korea Corp  
21-6, Jimok-ro 75 beon-gil  
Paju-se Gyeonggi-do (10880)  
Republic of Korea

**Tested by:** MHF International Road Safety Test Lab  
Organisation no: 556108-4384  
Accredited by Swedac ([www.swedac.se](http://www.swedac.se))  
Storgatan 3  
543 31 Tibro Sweden

**Subcontractor:** The following ISO/IEC 17025:2005 laboratories has been used  
  
ICR Co, Ltd (International Certification Registrar Ltd)  
112, Hwanggeum 3-ro 7beon-gil, Hagun-ri  
Yangchon-eup, Gimpo-si, Gyeonggi-do  
Republic of Korea (10048)

**Test report no:** 1210

**Test period:** 2017-06-21--2019-04-12

**Product name:** ALX3000

**Serial number:** Handunit: ZAH670001, ZAH670002, ZAH670003, ZAH670004  
ZAH830001, ZAH830002, ZAH830003, ZAH830004, ZAHAU0001,  
ZAHAU0002, ZAHAU0003, ZAHAU0004  
Centralunit: YAH670001, YAH670002, YAH670005, YAH670004  
YAH830001, YAH830002, YAH830003, YAH830004, YAHAU0001,  
YAHAU0002, YAHAU0003, YAHAU0004

**Test Standard:** EN 50436-1-:2014

**Test result:** The following table shows the test result, with reference to detailed documentation in appendix.

<b>Test element</b>	<b>Lab</b>	<b>Result</b>	<b>Appendix</b>
4.1 Blocking and unblocking	MHF	Pass	1&2
4.2 Influence on the vehicle motor	MHF	Pass	1&2
4.3 Tampering	MHF	Pass	1&2
4.4 Concentration limit	MHF	Pass	1&2
4.5 Mouthpiece	MHF	Pass	1&2
4.6 Readiness	MHF	Pass	1&2
4.7 Data memory, download and evalu.	MHF	Pass	1&2
4.8 Retests	MHF	Pass	1&2
4.9 Recall	MHF	Pass	1&2
4.10 Override function	MHF	Pass	1&2
4.11 Combination with other system	MHF	Pass	1&2
4.12 Communication integrity	MHF	Pass	1&2
4.13 Wireless communication	MHF	Pass	1&2
4.14 Basic functionality	MHF	Pass	1&2
6.2 Supply voltage	MHF	Pass	1&2
6.3 Excess supply voltage	MHF	Pass	1&2
6.4 Short-circuit	MHF	Pass	1&2
6.5 Reversed polarity	MHF	Pass	1&2
6.6 Low-power-consumption state	MHF	Pass	1&2
6.7.1 Supply lines	ICR	Pass	3
6.7.2 Lines other than supply lines	ICR	Pass	3
6.8 Electrostatic discharge	ICR	Pass	4
6.9 Electromagnetic compatibility	Emark	Pass	5
6.10 Functional test under normal	MHF	Pass	1&2
7 Calibration curve	MHF	Pass	1&2
8.1 Temperature cycles	MHF	Pass	1&2
8.2 Condensed water	MHF	Pass	1&2
8.3 Vibration test	ICR	Pass	6,7
8.4 Drop test	MHF	Pass	1&2
9.2 Temperature	MHF	Pass	1&2
9.3 Temperature and supply voltage	MHF	Pass	1&2
9.4 Temperature and humidity	MHF	Pass	1&2
9.5.1 Temperature 20°C	MHF	Pass	1&2
9.5.2 Temperature -5°C	MHF	Pass	1&2
9.5.3 Temperature -20°C	MHF	Pass	1&2
9.6 Pressure	MHF	Pass	1&2
9.7 Protection by enclosure	MHF	Pass	1&2

10.1 Volume	MHF	Pass	1&2
10.2 Flow	MHF	Pass	1&2
10.3 Exhalation time	MHF	Pass	1&2
10.4 Response time	MHF	Pass	1&2
11.1 Test gases	MHF	Pass	1&2
11.2 Cigarette smoke	MHF	Pass	1&2
12.2 Pressurised air	MHF	Pass	1&2
12.3 Prov. of the sample with a mouth. att	MHF	Pass	1&2
12.4 Prov. of the sample without a mouth	MHF	Pass	1&2
12.5 Obstruction of the mouthpiece	MHF	Pass	1&2
12.6 Filter	MHF	Pass	1&2
12.7 Condensation	MHF	Pass	1&2
12.8 Water	MHF	Pass	1&2
12.9 Putting out of service	MHF	Pass	1&2
12.10 Removal of handset	MHF	Pass	1&2
12.11 Bypass	MHF	Pass	1&2
13.1 Start period	MHF	Pass	1&2
13.2 Restart period	MHF	Pass	1&2
13.3 Service reminder	MHF	Pass	1&2
13.4 Calibration interval	MHF	Pass	1&2
14 Long term behaviour (tested 12 months)	MHF	Pass	1&2
15.1 Instructions for installation	MHF	Pass	1&2
15.2 Instructions for use	MHF	Pass	1&2
15.3 Instructions for servicing the alcohol	MHF	Pass	1&2
17 Labelling	MHF	Pass	1&2

Possible annotations are shown in the test protocol document appendix 1 and 2.

**Limits:**

- 6.7 Electrical disturbances, class A
- 6.9 EMC The tests according to the e-MARK 72/245/EEC as last Amended by ECE 10.05: E11 10R - 0510039
- 8.1 Temperature cycles, code G
- 8.3 Vibration testing ISO16750-3:2010 4.1.2.4, 4.1.2.8
- 9.7 Type of protection: IP40
- 14 Long term behavior (test) 12 month.

**Test result:**

**Approved** In all tests according to EN 50436-1:2014. With classification according to the specifications above.

**Appendix:**

- No 1: Test protocol document for alkolock no: 280:11
- No 2: Test protocol document for alkolock no: 280:13
- No 3: Test report ICR Co, Ltd no: ICRT-TR-E190381-0A
- No 4: Test report ICR Co, Ltd no: CRT-TR-E190381-0A
- No 5: Test report Emark no: E11 10R-0510039
- No 6: Test report ICr Co, Ltd no: ICRT-TR-R180050-0A
- No 7: Test report ICR Co, Ltd no: ICRT-TR-R180030-0A



Akkred. nr. 2012  
Provning  
ISO/IEC 17025

**Tibro 2019-04-12**



**Tomas Jonsson**  
CEO



**Ph.D Lars olov Sjöström**  
Quality leader