# TEST REPORT



Applicant : Senix Electronics Technology Limited

Applicant Address : 4/F, Block 15-2, Chuangye Industrial Area, Shapuwei, SongGang Street, Baoan District, Shenzhen, China

The following sample was submitted by the client as:

| | | |
|---|---|---|
| Manufacturer | : | Senix Electronics Technology Limited |
| Address | : | 4/F, Block 15-2, Chuangye Industrial Area, Shapuwei, SongGang Street, Baoan District, Shenzhen, China |
| Sample Description | : | wired keyboard |
| Style/Item No. | : | KB05, KB06, KB07, NK3300, NK3200, NK3100, NK2020-SME, NK2010-SME, NK1700-ME, NK1600-ME, NK1500-ME, NK1300-ME, NK1800-ME, NK1400-ME |
| Brand Name | : | N/A |
| Sample Receiving Date | : | Nov. 01, 2017 & Nov. 14, 2017 |
| Test Period | : | Nov. 01, 2017 to Nov. 14, 2017 |

**Test Requested:**

As requested by the applicant, test(s) was/were performed as below:

| Test Summary | | Conclusion |
|---|---|---|
| 1 | European Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (XRF screening and chemical confirm) | PASS |

**Test Results:** Please refer to following page(s).

Tested by: May li Reviewed by: Boly Peng Approved by: Jandyso

Declaration：

(1) The report shall not be reproduced partly without the written approval of the laboratory, except in full produced.
(2) All the results shown in the report apply to the tested sample,any erasion on the report is invalid
(3) All tested sample will be kept for one month,if there is any doubt about the test result, please inform within this period

**RoHS hazardous substances test**

Test method:

IEC 62321-3-1:2013, XRF screening

IEC 62321-4-2013 for Hg, analyzed by ICP-OES

IEC 62321-5-2013 for Cd and Pb, analyzed by ICP-OES

IEC 62321-7-2:2017 method 7.1 and/or IEC 62321-7-1:2015 for $Cr^{6+}$, analyzed by UV-VIS

IEC 62321-6-2015 for PBBs and PBDEs, analyzed by GC-MS

**1. XRF results:**

| No. | Sample name | Part name | Sample Description | Results | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Pb | Cd | Hg | Cr | Br |
| 1 | Wireless keyboard | Shell | Black plastic (front) | BL | BL | BL | BL | BL |
| 2 | | | Black plastic (rear) | BL | BL | BL | BL | **IN** |
| 3 | | | Red plastic | BL | BL | BL | BL | BL |
| 4 | | | Silvery plastic | BL | BL | BL | BL | BL |
| 5 | | Metal | Silvery metal | BL | BL | BL | BL | NA |
| 6 | | Screw | Black metal | BL | BL | BL | BL | NA |
| 7 | | Rubber Foot | Black rubber | BL | BL | BL | BL | BL |
| 8 | | Socket | White plastic | BL | BL | BL | BL | BL |
| 9 | | | Silvery metal | BL | BL | BL | BL | NA |
| 10 | | | Lead | BL | BL | BL | BL | NA |
| 11 | | Key | White rubber | BL | BL | BL | BL | BL |
| 12 | | | Silvery metal | BL | BL | BL | BL | NA |
| 13 | | | Lead | BL | BL | BL | BL | NA |
| 14 | | | Black plastic | BL | BL | BL | BL | BL |
| 15 | | | Transparent plastic | BL | BL | BL | BL | NA |
| 16 | | | Red plastic | BL | BL | BL | BL | BL |
| 17 | | | Gray plastic | BL | BL | BL | BL | BL |
| 18 | | Covered wire | Black plastic | BL | BL | BL | BL | BL |
| 19 | | | Fabric | BL | BL | BL | BL | BL |
| 20 | | Wire | Red plastic | BL | BL | BL | BL | BL |
| 21 | | | Black plastic | BL | BL | BL | BL | BL |
| 22 | | | Copper metal | BL | BL | BL | BL | NA |
| 23 | | Metal | Silvery metal | BL | BL | BL | BL | NA |
| 24 | | IC | IC | BL | BL | BL | BL | BL |
| 25 | | IC | Black plastic | BL | BL | BL | BL | BL |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 26 | | | Silvery metal | BL | BL | BL | BL | NA |
| 27 | | Solder | Solder | BL | BL | BL | BL | NA |
| 28 | | PCB | PCB | BL | BL | BL | BL | **IN** |

**2. Chemical confirm results:**

| Test Item(s) | Result (mg/kg) | | | | | Limit (mg/kg) |
|---|---|---|---|---|---|---|
| | 2 | 28 | --- | --- | --- | |
| Mono-PBB | ND | ND | ND | ND | ND | -- |
| Di-PBB | ND | ND | ND | ND | ND | -- |
| Tri-PBB | ND | ND | ND | ND | ND | -- |
| Tetra-PBB | ND | ND | ND | ND | ND | -- |
| Penta-PBB | ND | ND | ND | ND | ND | -- |
| Hexa-PBB | ND | ND | ND | ND | ND | -- |
| Hepta-PBB | ND | ND | ND | ND | ND | -- |
| Octa-PBB | ND | ND | ND | ND | ND | -- |
| Nona-PBB | ND | ND | ND | ND | ND | -- |
| Deca-PBB | ND | ND | ND | ND | ND | -- |
| **Sum of PBBs** | ND | ND | ND | ND | ND | 1000 |
| Mono-PBDE | ND | ND | ND | ND | ND | -- |
| Di- PBDE | ND | ND | ND | ND | ND | -- |
| Tri- PBDE | ND | ND | ND | ND | ND | -- |
| Tetra- PBDE | ND | ND | ND | ND | ND | -- |
| Penta- PBDE | ND | ND | ND | ND | ND | -- |
| Hexa- PBDE | ND | ND | ND | ND | ND | -- |
| Hepta- PBDE | ND | ND | ND | ND | ND | -- |
| Octa- PBDE | ND | ND | ND | ND | ND | -- |
| Nona- PBDE | ND | ND | ND | ND | ND | -- |
| Deca- PBDE | ND | ND | ND | ND | ND | -- |
| **Sum of PBDEs** | ND | ND | ND | ND | ND | 1000 |
| Comment | PASS | PASS | PASS | PASS | PASS | -- |

Remark:

1. BL = below limit
2. OL = over limit
3. IN = inconclusive, chemical confirm test is recommended
4. NA = not applicable
5. mg/kg = milligram per kilogram = ppm
6. Method Detection Limit (MDL) :10mg/kg for Pb, Cd, Hg and $Cr^{6+}$; 10mg/kg for PBB and PBDE

7. ND = not detected
8. Negative = The $Cr^{6+}$ concentration is below the limit of quantification. The coating is considered a non-$Cr^{6+}$ based coating.
9. Positive = The $Cr^{6+}$ concentration is above the limit of quantification and the statistical margin of error, The sample coating is considered to contain $Cr^{6+}$.

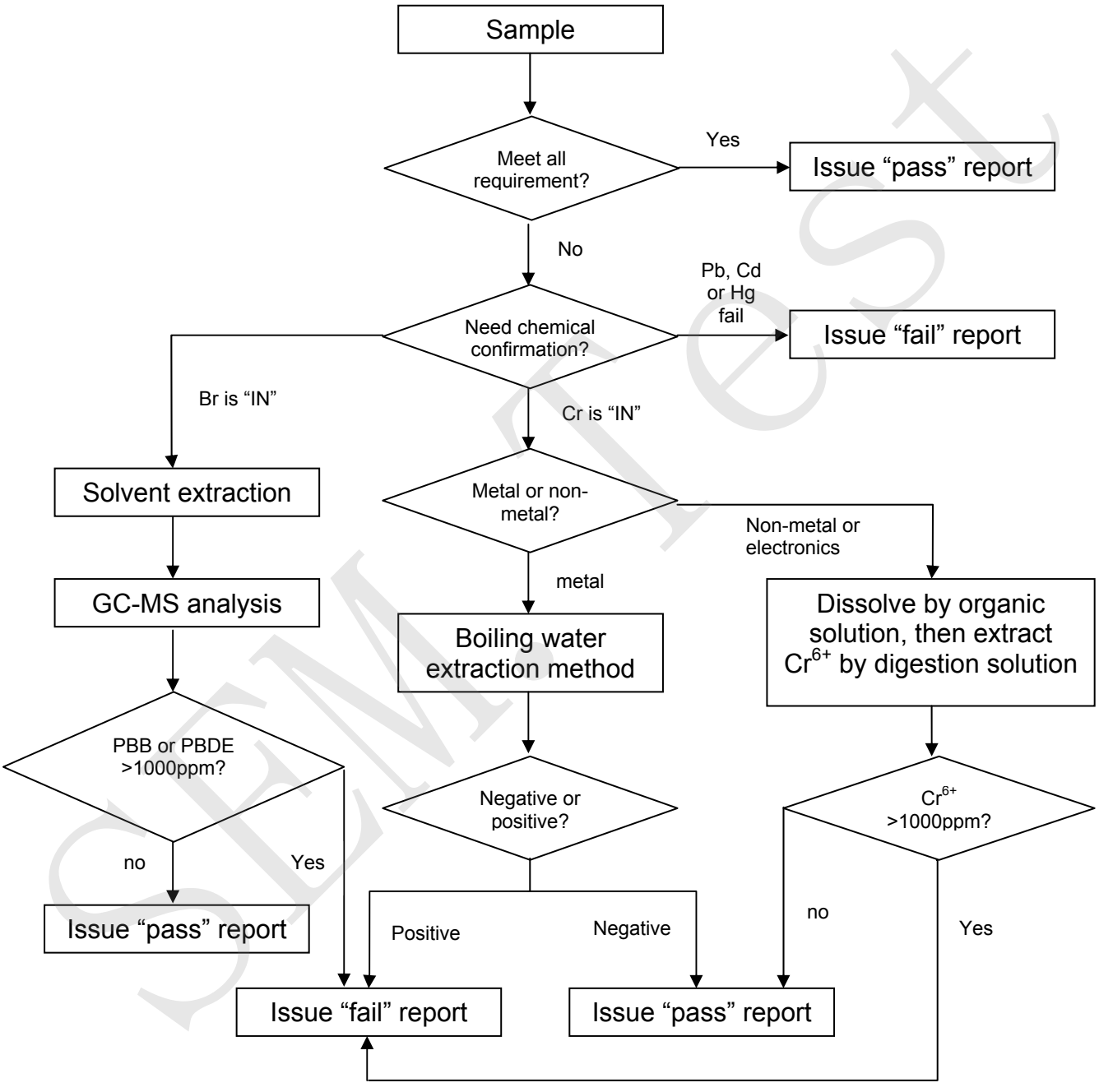
Note:

1. When perform screening tests, it is the result on total Br while test item on restricted substances is PBBs/PBDEs, it is the result on total Cr while test item on restricted substances is $Cr^{6+}$.
2. Results are obtained by EDXRF for primary screening, and further chemical testing by ICP-OES (for Cd, Pb, Hg), UV-VIS (for $Cr^{6+}$) and GC-MS (for PBBs, PBDEs) is recommended to be performed, if the concentration falls into the inconclusive area according to IEC 62321-3-1:2013 (unit: mg/kg)

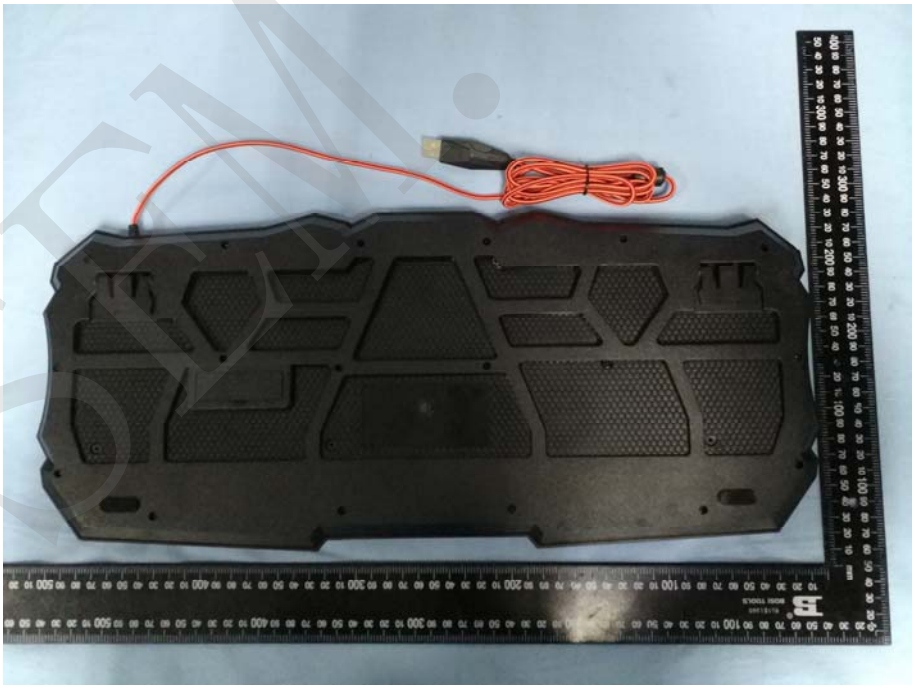
| Element | Polymer | Metal | Composite Materials |
|---|---|---|---|
| Cd | BL≤(70-3σ)<X<(130+3σ) ≤OL | BL≤(70-3σ)<X<(130+3σ) ≤OL | LOD<X<(150+3σ) ≤OL |
| Pb | BL≤(700-3σ) <X<(1300+3σ) ≤OL | BL≤(700-3σ)<X<(1300+3σ) ≤OL | BL≤(500-3σ) <X<(1500+3σ) ≤OL |
| Hg | BL≤(700-3σ) <X<(1300+3σ) ≤OL | BL≤(700-3σ)<X<(1300+3σ) ≤OL | BL≤(500-3σ) <X<(1500+3σ) ≤OL |
| Br | BL≤(300-3σ)<X | --- | BL≤(250-3σ)<X |
| Cr | BL≤(700-3σ)<X | BL≤(700-3σ)<X | BL≤(500-3σ)<X |

3. The XRF screening test for RoHS elements. The reading may be different to the actual content in the sample be of non-uniformity composition.
4. Results shown of component 27 were based on component part resubmitted by applicant.

**Test flow:**



**Tested sample photo:**



--- End of Report ---