



TEST REPORT

Report No.: LCS201105013AR

Date: 2020.11.13

Page 1 of 10

Applicant : Shanghai Hezhou Communication Technology Co., Ltd.

Address : Room 101, Building 1, 88 Shengrong Road, Pudong New District, Shanghai

Report on the submitted samples said to be:

Sample Name : LTE 模块

Trade Mark : N/A

Style No. : Air722UG-

Testing Period : November 05, 2020 ~ November 13, 2020

Results : Please refer to next page(s).

| TEST REQUEST | CONCLUSION |
|--|------------|
| According to the customer's request, based on the performed tests on submitted sample, the result of Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), PBBs, PBDEs, Dibutyl Phthalate(DBP), Benzylbutyl Phthalate(BBP), Bis(2-ethylhexyl) Phthalate(DEHP), Diisobutyl phthalate(DIBP) content comply with the limit requirement as set of RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU. | Pass |

Signed for and on behalf of LCS



Daniel Li



TEST REPORT

Report No.: LCS201105013AR

Date: 2020.11.13

Page 2 of 10

Results:

A.EU RoHS Directive 2011/65/EU and its amendment directives on XRF

Test method: With reference to IEC 62321-3-1:2013, Screening by X-ray Fluorescence Spectroscopy (XRF)

| Seq. No. | Tested Part(s) | Results | | | | | | Date of sample submission/resubmission |
|----------|-----------------------------------|---------|----|----|-----------------|-----------------|-------|--|
| | | Cd | Pb | Hg | Cr ^v | Br ^v | | |
| | | | | | | PBBs | PBDEs | |
| 1 | White printed silver metal shield | BL | BL | BL | BL | / | / | 2020-11-05 |
| 2 | Brown body capacitor | BL | BL | BL | BL | BL | BL | 2020-11-05 |
| 3 | Black body IC | BL | BL | BL | BL | BL | BL | 2020-11-05 |
| 4 | Black body | BL | BL | BL | BL | BL | BL | 2020-11-05 |
| 5 | Gray blue body | BL | BL | BL | BL | BL | BL | 2020-11-05 |
| 6 | Black body IC | BL | BL | BL | BL | BL | BL | 2020-11-05 |
| 7 | Black body IC | BL | BL | BL | BL | BL | BL | 2020-11-05 |
| 8 | Silver metal body | BL | BL | BL | BL | / | / | 2020-11-05 |
| 9 | Black body IC | BL | BL | BL | BL | BL | BL | 2020-11-05 |
| 10 | Black body | BL | BL | BL | BL | BL | BL | 2020-11-05 |
| 11 | Blue PCB | BL | BL | BL | BL | BL | BL | 2020-11-05 |



TEST REPORT

Report No.: LCS201105013AR

Date: 2020.11.13

Page 3 of 10

Note:

- (1) Results were obtained by XRF for primary screening, and further chemical testing by ICP (for Cd, Pb, Hg), UV-Vis (for Cr(VI)) and GC-MS (for PBBs, PBDEs) are recommended to be performed, if the concentration exceeds the below warning value according to IEC 62321-3-1:2013.

| Element | Unit | Non-metal | Metal | Composite Material |
|---------|-------|--|--|--|
| Cd | mg/kg | $BL \leq 70 - 3\sigma < X < 130 + 3\sigma \leq OL$ | $BL \leq 70 - 3\sigma < X < 130 + 3\sigma \leq OL$ | $BL \leq 50 - 3\sigma < X < 150 + 3\sigma \leq OL$ |
| Pb | mg/kg | $BL \leq 700 - 3\sigma < X < 1300 + 3\sigma \leq OL$ | $BL \leq 700 - 3\sigma < X < 1300 + 3\sigma \leq OL$ | $BL \leq 500 - 3\sigma < X < 1500 + 3\sigma \leq OL$ |
| Hg | mg/kg | $BL \leq 700 - 3\sigma < X < 1300 + 3\sigma \leq OL$ | $BL \leq 700 - 3\sigma < X < 1300 + 3\sigma \leq OL$ | $BL \leq 500 - 3\sigma < X < 1500 + 3\sigma \leq OL$ |
| Cr | mg/kg | $BL \leq 700 - 3\sigma < X$ | $BL \leq 700 - 3\sigma < X$ | $BL \leq 500 - 3\sigma < X$ |
| Br | mg/kg | $BL \leq 300 - 3\sigma < X$ | -- | $BL \leq 250 - 3\sigma < X$ |

Note:

- BL = Below Limit
- OL = Over Limit
- X = Inconclusive

- (2) The XRF screening test for RoHS elements – The reading may be different to the actual content in the sample be of non-uniformity composition.
- (3) The maximum permissible limit is quoted from the document 2015/863/EC amending RoHS directive 2011/65/EU:
- (4) ▼=For restricted substances PBBs and PBDEs, the results show the total Br content; The restricted substance was Cr(VI), and the results showed the total Cr content



TEST REPORT

Report No.: LCS201105013AR

Date: 2020.11.13

Page 4 of 10

| RoHS Restricted Substances | Maximum Concentration Value (mg/kg) (by weight in homogenous materials) |
|---------------------------------------|--|
| Cadmium (Cd) | 100 |
| Lead (Pb) | 1000 |
| Mercury (Hg) | 1000 |
| Hexavalent Chromium (Cr(VI)) | 1000 |
| Polybrominated biphenyls (PBBs) | 1000 |
| Polybrominated diphenylethers (PBDEs) | 1000 |
| Dibutyl Phthalate(DBP) | 1000 |
| Benzylbutyl Phthalate(BBP) | 1000 |
| Di-(2-ethylhexyl) Phthalate(DEHP) | 1000 |
| Diisobutyl phthalate(DIBP) | 1000 |

Disclaimers:

This XRF Screening report is for reference purposes only. The applicant shall make its/his/her own judgment as to whether the information provided in this XRF screening report is sufficient for its/his/her purposes.

The result shown in this XRF screening report will differ based on various factors, including but not limited to, the sample size, thickness, area, surface flatness, equipment parameters and matrix effect (e.g. plastic, rubber, metal, glass, ceramic etc.). Further wet chemical pre-treatment with relevant chemical equipment analysis are required to obtain quantitative data.



TEST REPORT

Report No.: LCS201105013AR

Date: 2020.11.13

Page 5 of 10

B. EU RoHS Directive 2011/65/EU and its amendment Directives 2015/863/EU on Lead, Cadmium, Mercury, Hexavalent Chromium, PBBs, PBDEs, DBP, BBP, DEHP, DIBP content.

Test method:

Lead(Pb) & Cadmium(Cd) Content:

With reference to IEC 62321-5:2013, by acid digestion and analysis was performed by inductively coupled plasma atomic emission spectrometer (ICP-OES)

Mercury(Hg) Content:

With reference to IEC 62321-4:2013+AMD1:2017 CSV, by acid digestion and analysis was performed by inductively coupled plasma atomic emission spectrometer (ICP-OES)

Hexavalent Chromium(Cr(VI)) Content:

With reference to IEC 62321-7-1:2015 or IEC 62321-7-2:2017, by alkaline digestion and analysis was performed by UV-visible spectrophotometer (UV-Vis)

PBBs & PBDEs Content:

With reference to IEC 62321-6:2015, by solvent extraction and analysis was performed by gas chromatographic-mass spectrometer (GC-MS)

BBP DBP DEHP & DIBP Content:

With reference to IEC 62321-8:2017, by solvent extraction and analysis was performed by gas chromatographic-mass spectrometer (GC-MS)



TEST REPORT

Report No.: LCS201105013AR

Date: 2020.11.13

Page 6 of 10

Note:

- MDL = Method Detection Limit
- /= Not apply
- LOQ = Limit of Quantification, The LOQ of Hexavalent chromium is 0.10 µg/cm²
- ▼ = a. The sample is positive for Cr(VI) if the Cr(VI) concentration is greater than 0.13ug/cm². The sample coating is considered to contain Cr(VI)
 b. The sample is negative for Cr(VI) if Cr(VI) is N.D.(concentration less than 0.10ug/cm²). The sample coating is considered a non- Cr(VI) based coating
 c. The result between 0.10µg/cm² and 0.13µg/cm² is considered to be inconclusive, unavoidable coating variations may influence the determination
- Information on storage conditions and production date of the tested samples is unavailable and thus Cr(VI) results represent status of the sample at the time of testing
- mg/kg = ppm=parts per million
- N.D.=Not Detected(<MDL or LOQ)
- #1 According to RoHS directive 2011/65/EU and its amendments, Lead is exempted in glass of cathode ray tubes, electronic components and fluorescent tubes.
- #2 According to RoHS directive 2011/65/EU and its amendments, Lead is exempted in electronic ceramic parts (e.g. piezoelectronic devices).
- #3 According to RoHS directive 2011/65/EU and its amendments, Lead is exempted as an alloying element in Copper containing up to 4% (40000ppm) by weight.
- #4 According to RoHS directive 2011/65/EU and its amendments, Lead is exempted in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead).
- #5 According to the statement provided by the customer, according to RoHS directive 2011/65/EU and its amendments, Lead is exempted as an alloying element in Aluminum containing up to 0.4% (4000ppm) by weight.
- #6 According to the statement provided by the customer, according to RoHS directive 2011/65/EU and its amendments, Cadmium and its compounds in electrical contact is exempted.
- #7 According to the statement provided by the customer, according to RoHS directive 2011/65/EU and its Amendments, Lead is exempted in steel for machining purposes and in galvanised steel containing up to 0.35% (3500ppm) by weight.
- Flow chart appendix is included.
- Photo appendix is included.



TEST REPORT

Report No.: LCS201105013AR

Date: 2020.11.13

Page 7 of 10

1) The test results of DBP、BBP、DEHP & DIBP

| Item | Unit | MDL | Results | Limit |
|-----------------------------------|-------|-----|---------|-------|
| | | | 2+3+4 | |
| Dibutyl Phthalate(DBP) | mg/kg | 600 | N.D. | 1000 |
| Benzylbutyl Phthalate(BBP) | mg/kg | 600 | N.D. | 1000 |
| Di-(2-ethylhexyl) Phthalate(DEHP) | mg/kg | 600 | N.D. | 1000 |
| Diisobutyl phthalate(DIBP) | mg/kg | 600 | N.D. | 1000 |

| Item | Unit | MDL | Results | Limit |
|-----------------------------------|-------|-----|---------|-------|
| | | | 5+6+7 | |
| Dibutyl Phthalate(DBP) | mg/kg | 600 | N.D. | 1000 |
| Benzylbutyl Phthalate(BBP) | mg/kg | 600 | N.D. | 1000 |
| Di-(2-ethylhexyl) Phthalate(DEHP) | mg/kg | 600 | N.D. | 1000 |
| Diisobutyl phthalate(DIBP) | mg/kg | 600 | N.D. | 1000 |

| Item | Unit | MDL | Results | Limit |
|-----------------------------------|-------|-----|---------|-------|
| | | | 9+10+11 | |
| Dibutyl Phthalate(DBP) | mg/kg | 600 | N.D. | 1000 |
| Benzylbutyl Phthalate(BBP) | mg/kg | 600 | N.D. | 1000 |
| Di-(2-ethylhexyl) Phthalate(DEHP) | mg/kg | 600 | N.D. | 1000 |
| Diisobutyl phthalate(DIBP) | mg/kg | 600 | N.D. | 1000 |



TEST REPORT

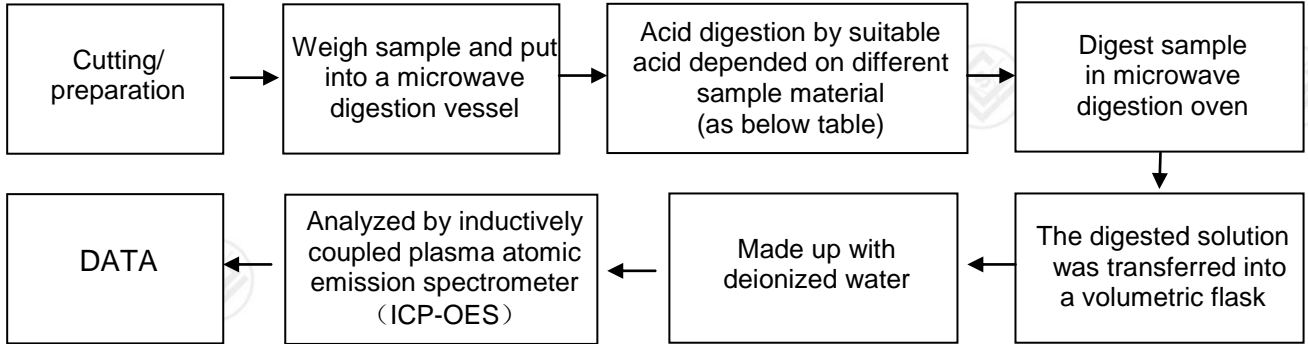
Report No.: LCS201105013AR

Date: 2020.11.13

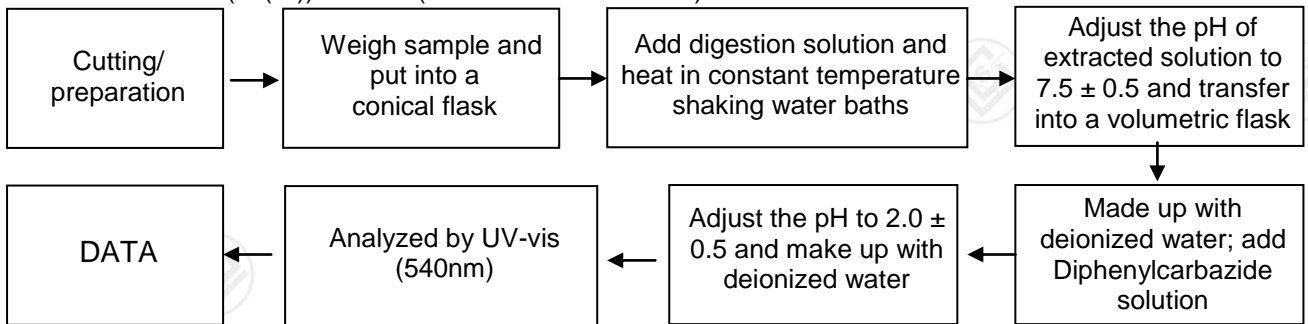
Page 8 of 10

Appendix

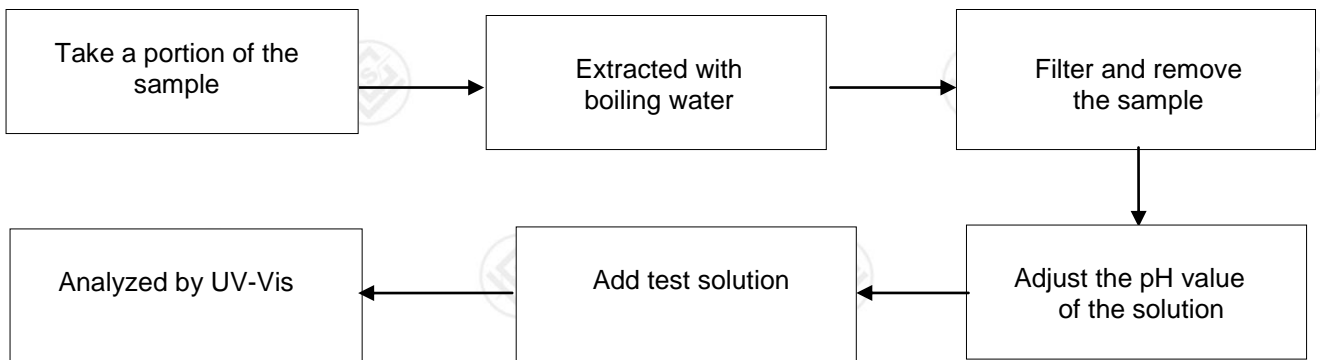
1. Test Flow chart for Cd/Pb /Hg content



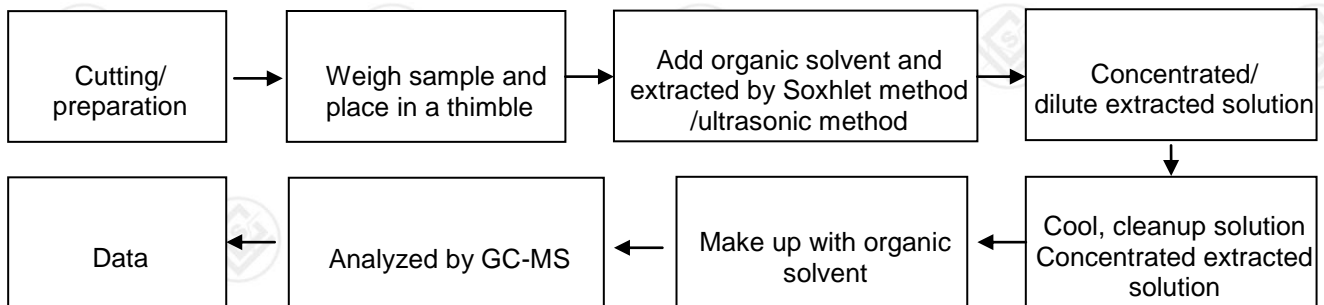
2. Test Flowchart for(Cr(VI)) content (For non-metal material)



Test Flowchart for (Cr(VI)) content (For metal material)



3. Test Flow chart for PBBs & PBDEs & DBP & BBP & DEHP & DIBP content





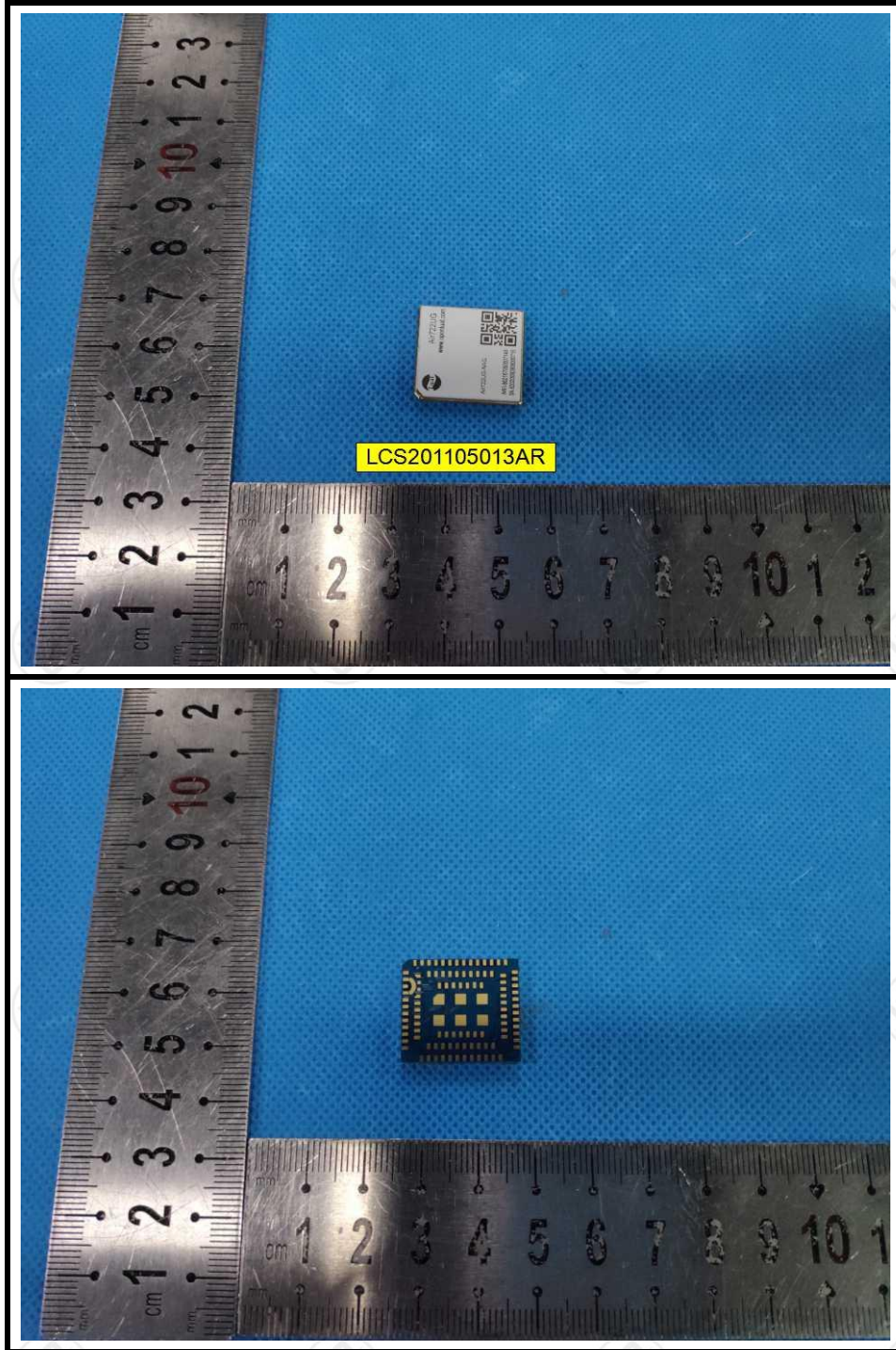
TEST REPORT

Report No.: LCS201105013AR

Date: 2020.11.13

Page 9 of 10

The photo of the sample



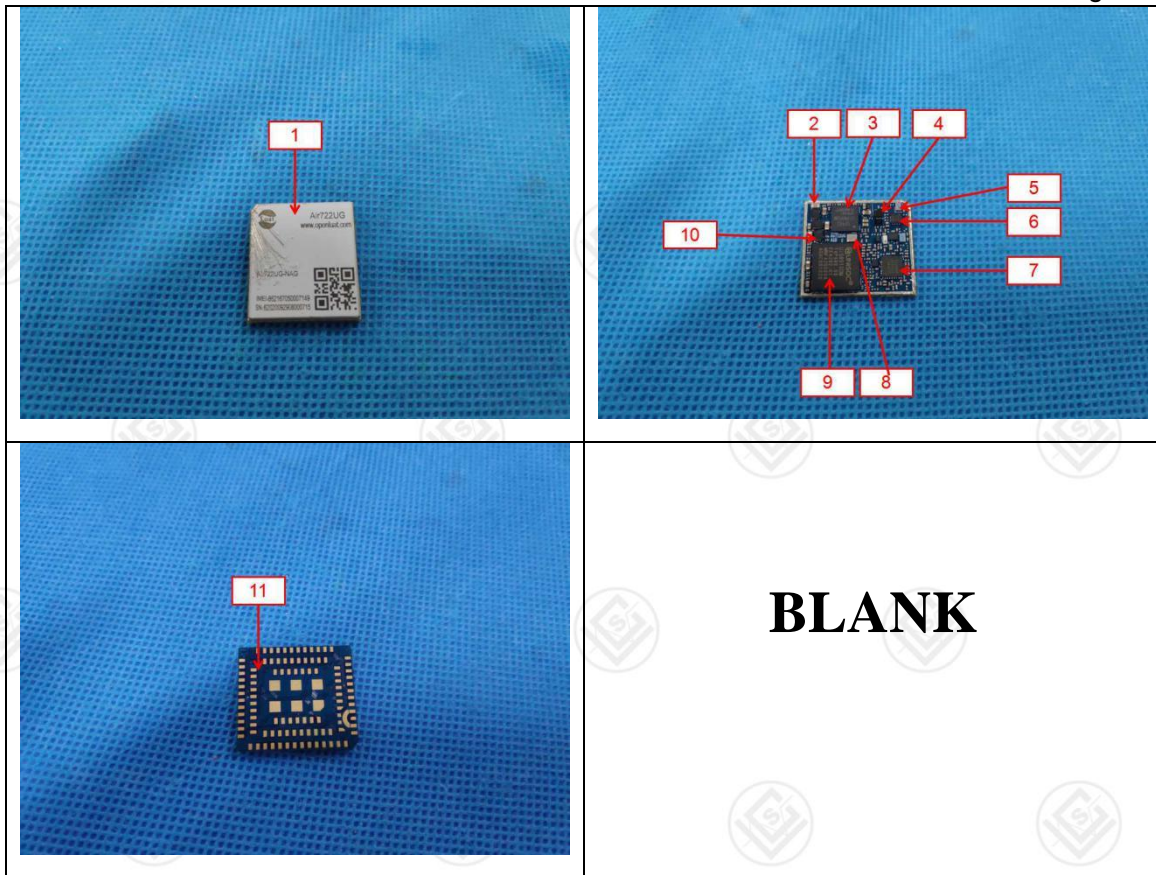


TEST REPORT

Report No.: LCS201105013AR

Date: 2020.11.13

Page 10 of 10



***** End of Report *****

Statement:

1. The test report is considered invalidated without approval signature, special seal on the perforation.
2. The result(s) shown in this report refer only to the sample(s) tested.
3. Without written approval of LCS, this report can't be reproduced except in full.
4. The sample(s) and sample information was/were provided by the client who should be responsible for the authenticity which LCS hasn't verified.
5. In case of any discrepancy between the English version and Chinese version of the testing reports(if generated), the Chinese version shall prevail.