

Report NO: 13R0A0005\_I

# LTE24E-S2-2

## of

# RTC-700A

## Power Electronics Test Report

|   |   |       |       |             |
|---|---|-------|-------|-------------|
| Summary   | <input checked="" type="checkbox"/> <b>Passed</b> |       |       |             |
|   | <input type="checkbox"/> <b>Failed</b>            |       |       |             |
| <input type="checkbox"/> <b>Passed with Deviation</b> |   |       |       |             |
| <b>Comment:</b> _____                                 |   |       |       |             |
| Test Result Summary                                   |   |       |       |             |
|   | Critical  | Major | Minor | Enhancement |
| Defect Found  | 0   | 0     | 0     | 0           |
| Defect Unsolved                                       | 0   | 0     | 0     | 0           |

Issue date

**11/11/2013**

Approval

**Tom Lin**

Test Engineer

**Sean Hsu**

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**1. Project**

LTE-24E-S2-2 AC-DC Adapter for RTC-700A

**2. Power Manufacturer**

LI TONE ELECTRONICS CO.,LTD

**3. Team Member**

PM : Cindy Lu ; EE : Nathan Hsiu

**4. Test Equipment**

4.1. CPU Board : AAEON , RTC-700A , Rev.A1.2

4.2. CPU : NVIDIA® Tegra™ 2 1.0GHz Dual-core processor

4.3. Memory : Built-in 1GB (14S69M5200 667MHz 1.8V)

4.4. Storage Disk Drive : Built-in 16GB eMMC flash

4.5. AC Adapter : LTE , Model : LTE24E-S2-2 , O/P : 12V/2A , 24Wat

**5. AC Adapter Spec**

AC Input : 100VAC~240VAC / 47Hz~63Hz

DC Output : 12Vdc Min Load : 0A ; Max Load : 2A / 24W

## 6. Test Item

| Test Item                      | Test Condition / Specification                  |  | Sanction |        |
|--------------------------------|---|--|----------|--------|
|                                |   |  | Measured | Result |
| 6.1. AC Input Current          | I/P:115VAC                                      | 0.45A  | 0.42A    | Passed |
| 6.2. MAX Inrush Current        | I/P:115VAC                                      | A  | -        | N/A    |
|                                | I/P:230VAC                                      | A  | -        | N/A    |
| 6.3. Input Frequency & Voltage | I/P:90VAC/47HZ                                  | ■ON □ OFF  | -        | Passed |
|                                | I/P:90VAC/63HZ                                  | ■ON □ OFF  | -        | Passed |
|                                | I/P:264VAC/47HZ                                 | ■ON □ OFF  | -        | Passed |
|                                | I/P:264VAC/63HZ                                 | ■ON □ OFF  | -        | Passed |
| 6.4. Switching Test            | Switching Time: 0.5 Sec<br>MIN Load / Full Load | @90VAC ■ON □ OFF   | -        | Passed |
|                                | Switching Time: 0.5 Sec<br>MIN Load / Full Load | @115VAC ■ON □ OFF  | -        | Passed |
|                                | Switching Time: 0.5 Sec<br>MIN Load / Full Load | @230VAC ■ON □ OFF  | -        | Passed |
|                                | Switching Time: 0.5 Sec<br>MIN Load / Full Load | @264VAC ■ON □ OFF  | -        | Passed |
| 6.5. Efficiency                | I/P:90VAC<br>FULL LOAD                          | @80%Min  | 80.546%  | Passed |
|                                | I/P:115VAC<br>FULL LOAD                         | @80%Min  | 82.483%  | Passed |
|                                | I/P:230VAC<br>FULL LOAD                         | @80%Min  | 84.408%  | Passed |
|                                | I/P:264VAC<br>FULL LOAD                         | @80%Min  | 83.215%  | Passed |
| 6.6. Line Regulation           | I/P:90VAC~264VAC                                | <±1%   | -0.2%    | Passed |
| 6.7. Load Regulation           | I/P:115VAC<br>O/P:MINLOAD~FULL<br>LOAD          | <±4%   | 2.308%   | Passed |
|                                | I/P:230VAC<br>O/P:MINLOAD~FULL<br>LOAD          | <±4%   | 2.475%   | Passed |
| 6.8. Over-Voltage Protection   | I/P:230VAC O/P:MIN LOAD                         | V1 : 15.6V (MAX)   | -        | N/A    |
| 6.9. Over-Circuit Protection   | O/P: 12V  | A(MAX)   | 3.4A     | Passed |
| 6.10. Over-Load Protection     | I/P:90VAC O/P:MIN LOAD                          | 120~200%   | 168.5%   | Passed |
|                                | I/P:115VAC O/P:MIN LOAD                         | 120~200%   | 170.6%   | Passed |
|                                | I/P:230VAC O/P:MIN LOAD                         | 120~200%   | 171.6%   | Passed |
|                                | I/P:264VAC O/P:MIN LOAD                         | 120~200%   | 168.7%   | Passed |
| 6.11. Short Circuit Protect    | I/P:115VAC O/P:MIN LOAD                         | 12V&GND Short  | -        | Passed |
|                                | I/P:230VAC O/P:MIN LOAD                         | 12V&GND Short  | -        | Passed |
| 6.12. Line Voltage Surge       | O/P: FULL LOAD                                  | Surge voltage from 132VAC<br>to 147VAC (0.5sec), back<br>to 132VAC |          | Passed |
|                                | O/P: FULL LOAD                                  | Surge voltage from 264VAC<br>to 293VAC (0.5sec), back<br>to 264VAC |          | Passed |

|  |   |  |                          |        |
|--|---|--|--------------------------|--------|
| 6.13. Line Voltage Sag                       | O/P: FULL LOAD  | Sag voltage from 108VAC to 80VAC (0.5sec), back to 108VAC  | -                        | Passed |
|  | O/P: FULL LOAD  | Sag voltage from 198VAC to 161VAC (0.5sec), back to 198VDC | -                        | Passed |
| 6.14. Ripple & Noise                         | I/P:115VAC O/P:FULL LOAD  | $\leq 120\text{mv}$  | 93mv                     | Passed |
|  | I/P:230VAC O/P:FULL LOAD  | $\leq 120\text{mv}$  | 94mv                     | Passed |
| 6.15. Setup Time                             | I/P:115VAC O/P:FULL LOAD  | 3S(MAX)  | 915ms                    | Passed |
|  | I/P:230VAC O/P:FULL LOAD  | mS(MAX)  | 370.5ms                  | Passed |
| 6.16. Hold up Time                           | I/P:115VAC O/P:FULL LOAD  | 10mS(MIN)  | 16.9ms                   | Passed |
|  | I/P:230VAC O/P:FULL LOAD  | 8mS(MIN)   | 76.5ms                   | Passed |
| 6.17. Rise Time                              | I/P:115VAC O/P:FULL LOAD  | mS(MAX)  | 8.102ms                  | N/A    |
|  | I/P:230VAC O/P:FULL LOAD  | mS(MAX)  | 7.841ms                  | N/A    |
| 6.18. Turn on Overshoot                      | Turn on overshoot shall not exceed 10% over nominal voltages@ 20 % LOAD   |  | -                        | Passed |
|  | Turn on overshoot shall not exceed 10% over nominal voltages@ 20 % LOAD   |  | -                        | Passed |
| 6.19. Turn off Undershoot                    | Turn off undershoot shall not exceed 10% over nominal voltages@ 20 % LOAD |  | -                        | Passed |
|  | Turn off undershoot shall not exceed 10% over nominal voltages@ 20 % LOAD |  | -                        | Passed |
| 6.20. Remote ON/OFF                          | Simulate TTL signal to test this function                                 |  | -                        | -      |
| 6.21. Power Good Signal                      | Shall go high level with a delay of100~500ms                              |  | -                        | -      |
| 6.22. Power On In Low Temperature            | I/P:115VAC ( °C) After 2HR Power On                                       |  | -                        | -      |
| 6.23. Power On In High Temperature           | I/P:115VAC ( °C)After 2HR Power On  |  | -                        | -      |
| 6.24. Power Consumption Test with AC Adapter | No Run Video  | I/P:100VAC 0.38A 22.5W                                     | O/P: 12V/1.52A<br>18.24W | Passed |
|  | Run Video   | I/P:100VAC 0.4A 23.2W                                      | O/P: 12V/1.57A<br>18.84W | Passed |