

Report NO: 13R0A0006_I

LTE24E-S2-2 of RTC-700R Power Electronics Test Report

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

| | | |
|-------------------|----------------|-----------------|
| Issue date | Approval | Test Engineer |
| 11/11/2013 | Tom Lin | Sean Hsu |

Table of Contents

| | |
|--|---|
| 1. Project..... | 3 |
| 2. Power Manufacturer | 3 |
| 3. Team Member | 3 |
| 4. Test Equipment | 3 |
| 5. AC Adapter Spec..... | 3 |
| 6. Test Item..... | 4 |
| 6.1. AC Input Current..... | 4 |
| 6.2. MAX Inrush Current | 4 |
| 6.3. Input Frequency & Voltage | 4 |
| 6.4. Switching Test..... | 4 |
| 6.5. Efficiency | 4 |
| 6.6. Line Regulation..... | 4 |
| 6.7. Load Regulation | 4 |
| 6.8. Over-Voltage Protection | 4 |
| 6.9. Over-Circuit Protection | 4 |
| 6.10. Over-Load Protection | 4 |
| 6.11. Short Circuit Protect..... | 4 |
| 6.12. Line Voltage Surge..... | 4 |
| 6.13. Line Voltage Sag | 5 |
| 6.14. Ripple & Noise..... | 5 |
| 6.15. Setup Time | 5 |
| 6.16. Hold up Time..... | 5 |
| 6.17. Rise Time..... | 5 |
| 6.18. Turn on Overshoot | 5 |
| 6.19. Turn off Undershoot..... | 5 |
| 6.20. Remote ON/OFF | 5 |
| 6.21. Power Good Signal..... | 5 |
| 6.22. Power On In Low Temperature | 5 |
| 6.23. Power On In High Temperature | 5 |
| 6.24. Power Consumption Test with AC Adapter | 5 |

1. Project

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

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-700R , 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 MIN Load / Full Load | @90VAC ■ON □ OFF | - | Passed |
| | Switching Time: 0.5 Sec MIN Load / Full Load | @115VAC ■ON □ OFF | - | Passed |
| | Switching Time: 0.5 Sec MIN Load / Full Load | @230VAC ■ON □ OFF | - | Passed |
| | Switching Time: 0.5 Sec MIN Load / Full Load | @264VAC ■ON □ OFF | - | Passed |
| 6.5. Efficiency | I/P:90VAC FULL LOAD | @80%Min | 80.546% | Passed |
| | I/P:115VAC FULL LOAD | @80%Min | 82.483% | Passed |
| | I/P:230VAC FULL LOAD | @80%Min | 84.408% | Passed |
| | I/P:264VAC 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 O/P:MINLOAD~FULL LOAD | <±4% | 2.308% | Passed |
| | I/P:230VAC O/P:MINLOAD~FULL 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 to 147VAC (0.5sec), back to 132VAC | | Passed |
| | O/P: FULL LOAD | Surge voltage from 264VAC to 293VAC (0.5sec), back 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 22.4W | O/P: 12V/1.51A 18.12W | Passed |
| | Run Video | I/P:100VAC 0.4A 23.3W | O/P: 12V/1.58A 18.96W | Passed |