

# FSP040-RHAN2 with FWS-2253 Power Electronics Test Report

|                              |   |       |       |             |
|------------------------------|---|-------|-------|-------------|
| Summary                      | <input checked="" type="checkbox"/> Pass<br><input type="checkbox"/> Fail<br><input type="checkbox"/> Pass with Deviation<br>Comment: |       |       |             |
| <b>Test Results Category</b> |   |       |       |             |
|                              | Critical  | Major | Minor | Enhancement |
| Defect Found                 | 0   | 0     | 0     | 0           |
| Defect Unsolved              | 0   | 0     | 0     | 0           |

Issue date  

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2016-04-19

QE Manager  

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KJ Wang

Test Engineer  

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Louie Lee

## 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-Current Protection .....   | 4 |
| 6.10. Over-Load Protection .....     | 4 |
| 6.11. Short Circuit Protect.....     | 4 |
| 6.12. Ripple & Noise.....            | 5 |
| 6.13. Turn-On Delay .....            | 5 |
| 6.14. Hold up Time.....              | 5 |
| 6.15. Rise Time.....                 | 5 |
| 6.16. Turn on Overshoot .....        | 5 |
| 6.17. Turn off Undershoot.....       | 5 |
| 6.18. Power Consumption Test.....    | 5 |
| with DC Power.....                   | 5 |

**1. Project**

FSP040-RHAN2 AC-DC Adapter for FWS-2253

**2. Power Manufacturer**

FSP

**3. Team Member**

PM : Jill Chu ; H/W : Damon Chang

**4. Test Equipment**

4.1. LCD Monitor : ASUS , Model : PA238

4.2. PCB Board : AAEON , FWS-2250 Rev A1.0

4.3. CPU : Intel® Celeron® Processor N2807(1M Cache, up to 2.16 GHz)

4.4. CF : Innodisk iCF9000 32GB

4.5. Memory : Innodisk DDR3L-1600 4GB (SEC 231 HYKO K4B4G0846D)

**5. AC Adapter Spec**

AC Input : 90VAC~264VAC / 47Hz~63Hz

DC Output : 12VDC Min Load : 0A Full Load : 3.33A / 39.96W

## 6. Test Item

| Test Item                      | Test Condition / Specification                  |   | Sanction |        |
|--------------------------------|---|---|----------|--------|
|                                |   |   | Measured | Result |
| 6.1. AC Input Current          | I/P:115VAC                                      | A   | 0.86A    | -      |
|                                | I/P:230VAC                                      | A   | 0.51A    | -      |
| 6.2. MAX Inrush Current        | I/P:115VAC                                      | A   | 8.28A    | -      |
|                                | I/P:230VAC                                      | A   | 8.52A    | -      |
| 6.3. Input Frequency & Voltage | I/P:90VAC/47HZ                                  | ■ON □ OFF                                       | -        | PASS   |
|                                | I/P:90VAC/63HZ                                  | ■ON □ OFF                                       | -        | PASS   |
|                                | I/P:264VAC/47HZ                                 | ■ON □ OFF                                       | -        | PASS   |
|                                | I/P:264VAC/63HZ                                 | ■ON □ OFF                                       | -        | PASS   |
| 6.4. Switching Test            | Switching Time: 0.5 Sec<br>MIN Load / Full Load | @90VAC ■ON □ OFF                                | -        | PASS   |
|                                | Switching Time: 0.5 Sec<br>MIN Load / Full Load | @115VAC ■ON □ OFF                               | -        | PASS   |
|                                | Switching Time: 0.5 Sec<br>MIN Load / Full Load | @230VAC ■ON □ OFF                               | -        | PASS   |
|                                | Switching Time: 0.5 Sec<br>MIN Load / Full Load | @264VAC ■ON □ OFF                               | -        | PASS   |
| 6.5. Efficiency                | I/P:115VAC O/P:3.33A                            | @87.60%Min Average<br>Efficiency(for full load) | 88.213%  | PASS   |
|                                | I/P:230VAC O/P:3.33A                            | @87.60%Min Average<br>Efficiency(for full load) | 87.960%  | PASS   |
| 6.6. Line Regulation           | I/P:90VAC~264VAC                                | 1%(MAX)   | -0.017%  | PASS   |
| 6.7. Load Regulation           | I/P:115VAC<br>O/P:MIN~FULL LOAD                 | 5%(MAX)   | -3.458%  | PASS   |
|                                | I/P:230VAC<br>O/P:MIN~FULL LOAD                 | 5%(MAX)   | -3.458%  | PASS   |
| 6.8. Over-Voltage Protection   | I/P:230VAC O/P:MIN<br>LOAD                      | V1 : 18 (MAX)                                   | -        | -      |
| 6.9. Over-Current Protection   | O/P: 12V  | 5.5A(MAX)                                       | 4.9A     | PASS   |
| 6.10. Over-Load Protection     | I/P:90VAC O/P:MIN<br>LOAD                       | 165%  | 141%     | PASS   |
|                                | I/P:115VAC O/P:MIN<br>LOAD                      | 165%  | 147%     | PASS   |
|                                | I/P:230VAC O/P:MIN<br>LOAD                      | 165%  | 150%     | PASS   |
|                                | I/P:264VAC O/P:MIN<br>LOAD                      | 165%  | 153%     | PASS   |
| 6.11. Short Circuit Protect    | I/P:115VAC O/P:MIN<br>LOAD                      | 12V&GND Short                                   | -        | PASS   |
|                                | I/P:230VAC O/P:MIN<br>LOAD                      | 12V&GND Short                                   | -        | PASS   |

|   |   |                           |         |      |
|---|---|---------------------------|---------|------|
| <b>6.12. Ripple &amp; Noise</b>                   | I/P:115VAC O/P:FULL LOAD  | 120mv(MAX)                | 90.6mv  | PASS |
|   | I/P:230VAC O/P:FULL LOAD  | 120mv(MAX)                | 92.2mv  | PASS |
| <b>6.13. Turn-On Delay</b>                        | I/P:115VAC O/P:FULL LOAD  | 3S(MAX)                   | 780ms   | PASS |
| <b>6.14. Hold up Time</b>                         | I/P:115VAC O/P:FULL LOAD  | 5mS(MIN)                  | 25.50ms | PASS |
| <b>6.15. Rise Time</b>                            | I/P:115VAC O/P:FULL LOAD  | 2mS(MIN)<br>100mS(MAX)    | 12.3ms  | PASS |
|   | I/P:230VAC O/P:FULL LOAD  | 2mS(MIN)<br>100mS(MAX)    | 11.2ms  | PASS |
| <b>6.16. Turn on Overshoot</b>                    | Turn on overshoot shall not exceed 10% over nominal voltages@ 20 % LOAD |                           | -       | PASS |
|   | Turn on overshoot shall not exceed 10% over nominal voltages@ 20 % LOAD |                           | -       | PASS |
| <b>6.17. Turn off Undershoot</b>                  | Turn off undershoot shall not exceed 10% over nominal voltages          |                           | -       | PASS |
|   | Turn off undershoot shall not exceed 10% over nominal voltages          |                           | -       | PASS |
| <b>6.18. Power Consumption Test with DC Power</b> | No Run stress test  | I/P:12VDC / 0.53A = 6.36W |         | PASS |
|   | Run stress test   | I/P:12VDC / 0.67A= 8.04W  |         | PASS |
|   | Sleep Mode  | I/P:12VDC / 0.08A= 0.96W  |         | PASS |
|   | Off Mode  | I/P:12VDC / 0.07A= 0.84W  |         | PASS |