

| Part #    |   | C20:   | 40      | Ah    | Test<br>Stage<br>DV | TEST MATRIX |       |       |       |       |       |
|-----------|---|--|---------|-------|---------------------|-------------|-------|-------|-------|-------|-------|
| Size      | L0 (H3) AGM                                 | C5:  | 35      | Ah    |                     |             |       |       |       |       |       |
| Supplier  | Clarios                                     | RC:  | 60      | Min   |                     |             |       |       |       |       |       |
| Form Date |   | SAE CCA:   | 420     | Amps  |                     |             |       |       |       |       |       |
| test #    | BATTERY NUMBER                              | Spec   | Unit    | 1     | 2                   | 3           | 4     | 5     | 6     | 7     | 8     |
| 3.1       | Internal Resistance                         |  |         | 4.77  | 4.68                | 4.88        | 4.78  | 4.68  | 4.65  | 4.75  | 4.77  |
|           | OCV   |  |         | 12.73 | 12.72               | 12.71       | 12.73 | 12.72 | 12.72 | 12.72 | 12.72 |
| 3.2       | 1 <sup>ST</sup> Capacity, Ce (as received)  | 38 (for fresh battery)<br>Battery rest for 1.5<br>months after formation | Ah      | 37.31 | 37.91               | 37.03       | 37.36 |       | 37.54 | 37.23 | 36.84 |
| 3.3       | 1 <sup>ST</sup> Capacity, Cr (after charge) | 60   | minutes |       |                     |             |       |       |       |       |       |
| 3.4       | 1 <sup>ST</sup> Cold Crank SAE (-18°C)      | 10s ≥7.5   | volt    | 8.08  | 8.1                 |             |       |       |       |       |       |
|           |   | 30s ≥ 7.2  | volt    | 7.69  | 7.74                |             |       |       |       |       |       |
| 3.4       | 1 <sup>ST</sup> Cold Crank SAE (-29°C)      | 10s ≥7.5   | volt    |       |                     |             |       |       |       | 8.06  |       |
|           |   | 30s ≥ 7.2  | volt    |       |                     |             |       |       |       | 7.36  |       |
| 3.6       | 1 <sup>ST</sup> Cold Crank EN (-18°C)       | 10s ≥7.5   | volt    |       |                     | 7.89        | 8     |       |       |       | 7.97  |
|           |   | 20s ≥ 9.0  | volt    |       |                     | 9.19        | 9.27  |       |       |       | 9.25  |
|           |   | t'6v   | Sec     |       |                     | 140.7       | 145.1 |       |       |       | 144.2 |
|           |   | Ccc  | 8       |       |                     | 11.02       | 11.32 |       |       |       | 11.26 |
| 3.2       | 2 <sup>ND</sup> Capacity, Ce                | 40   | Ah      | 44.69 | 44.71               | 44.4        | 44.14 |       |       | 44.63 | 44.02 |
| 3.4       | 1 <sup>ST</sup> Cold Crank SAE (-29°C)      | 10s ≥7.5   | volt    |       |                     |             |       |       |       | 7.81  |       |
|           |   | 30s ≥ 7.2  | volt    |       |                     |             |       |       |       | 7.31  |       |
| 3.6       | 2 <sup>ND</sup> Cold Crank EN (-18°C)       | 10s ≥7.5   | volt    | 8.03  | 7.97                | 7.88        | 7.92  |       |       |       | 7.92  |
|           |   | 20s ≥ 9.0  | volt    | 9.29  | 9.25                | 9.2         | 9.21  |       |       |       | 9.23  |
|           |   | t'6v   | Sec     | 146.9 | 146.7               | 136         | 138   |       |       |       | 139.9 |
|           |   | Ccc  | 8       |       | 11.45               | 11.44       | 10.69 | 10.83 |       |       |       |
| 3.18A     | Internal Resistance (Ref Only)              |  | m ohms  | 4.69  | 4.66                | 4.79        | 4.76  |       |       | 4.79  | 4.71  |
| 3.2       | 3 <sup>RD</sup> Capacity, Ce                | 40   | Ah      |       |                     | 44.39       | 44.29 |       |       | 44.63 | 44.18 |
| 3.3       | Reserve Capacity, Cr,e                      | 60   | min     | 79.3  | 79                  |             |       | 77.2  |       |       |       |
| 3.4       | 3 <sup>RD</sup> Cold Crank SAE (-18°C)      | 10s ≥7.5   | volt    | 7.98  | 7.92                |             |       |       |       |       |       |
|           |   | 30s ≥ 7.2  | volt    | 7.61  | 7.53                |             |       |       |       |       |       |
| 3.10      | Charge Acceptance Low Temp.                 | 10   | A       | 10.5  | 10.7                |             |       |       |       |       |       |
| 3.15      | Dynamic Charge Acceptance                   |  |         |       |                     |             |       |       |       |       |       |
|           | 90% 1sec                                    | 20   | A       | 34.6  |                     | 37.2        | 37.3  |       |       |       |       |
|           | 90% 60sec                                   | 16   | A       | 21.9  |                     | 19.6        | 20.6  |       |       |       |       |
|           | 80% 1sec                                    | 40   | A       | 56.9  |                     | 58.2        | 57.6  |       |       |       |       |
|           | 80% 60sec                                   | 24   | A       | 31.3  |                     | 30.3        | 31.5  |       |       |       |       |
|           | 70% 1sec                                    | 60   | A       | 83.4  |                     | 79.5        | 79.5  |       |       |       |       |
|           | 70% 60sec                                   | 32   | A       | 40.4  |                     | 39.6        | 40.9  |       |       |       |       |
|           | 60% 1sec                                    | 80   | A       | 112.4 |                     | 102.5       | 103.7 |       |       |       |       |
| 60% 60sec | 40  | A  | 50.8    |       | 49.1                | 50.3        |       |       |       |       |       |