

# 21st Century Automotive Challenge 2007

# Electric Vehicle Event Summary

6/10/2007 20:37

1000 Pts Max

Car #	Car Name	TOTAL SCORE	Position	Braking		Acceleration		AutoCross		Effic Mi/kWh		Effic Payload	
				Decel (m/s <sup>2</sup> )	Score	Accel (m/s <sup>2</sup> )	Score	Time (sec)	Score	Mi/kWh	Score	MiLb-mph/Wh	Score
14	Lorax	<b>606</b>	<b>1</b>	8.80	97.0	2.5	45.2	31.5	113.0	4.6	251.6	47.8	98.9
56	StMarks	<b>413</b>	<b>5</b>	5.66	46.7	2.7	50.1	28.6	163.9	3.3	92.2	29.8	60.2
"007"	RabbitPickup	<b>418</b>	<b>4</b>	4.71	50.3	2.5	43.3	30.8	125.7	3.5	118.7	38.9	79.8
16	ElecTecs/Cinn	<b>601</b>	<b>2</b>	5.68	45.7	3.6	86.0	27.2	188.6	3.8	152.3	61.8	128.9
99	The Quiet Revolution	<b>518</b>	<b>3</b>	4.91	43.6	3.3	74.8	33.6	74.8	4.5	239.5	41.6	85.7

# 21ST CENTURY AUTOMOTIVE CHALLENGE

## Braking Event

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Car #	Car Name	Time (sec)	Calc MPH	ODO MPH	MPH Value	Brake Distance Feet	Speed M/s	Distance Meters	Decel m/sec2	Score	Best Score	Rank
14	Lorax	1.10	24.1	20	24.1	21.6	10.8	6.6	8.80	66.1	97.0	1
14	Lorax	1.16	22.5	20	22.5	12.9	10.0	3.9	12.82	92.3		
14	Lorax	1.15	22.7	20	22.7	12.5	10.2	3.8	13.55	97.0		
56	StMarks	1.40	17.8	25	17.8	18.3	8.0	5.6	5.66	45.6	46.7	3
56	StMarks	1.10	24.1		24.1	32.6	10.8	9.9	5.83	46.7		
56	StMarks	1.32	19.1	26	19.1	27.1	8.5	8.3	4.42	37.5		
"007"	RabbitPickup	1.40	17.8	20	17.8	22.0	8.0	6.7	4.71	39.4	50.3	2
"007"	RabbitPickup	1.10	24.1	25	24.1	29.8	10.8	9.1	6.38	50.3		
"007"	RabbitPickup	1.40	17.8	30	17.8	41.0	8.0	12.5	2.53	25.2		
16	ElecTecs/Cinn	1.10	24.1	20	24.1	33.4	10.8	10.2	5.68	45.7	45.7	4
16	ElecTecs/Cinn	1.40	17.8	20	17.8	24.5	8.0	7.5	4.23	36.3		
16	ElecTecs/Cinn	1.32	19.1	20	19.1	21.2	8.5	6.5	5.66	45.6		
99	The Quiet Revolution	1.27	20.1	20	20.1	26.8	9.0	8.2	4.91	40.7	43.6	5
99	The Quiet Revolution	1.26	20.3	20	20.3	29.3	9.1	8.9	4.58	38.6		
99	The Quiet Revolution	1.27	20.1	20	20.1	24.7	9.0	7.5	5.34	43.6		

<b>BrakeBest</b>	14.0	<b>m/sec2</b>	<b>Accel=Vo^2/2X</b>	<b>Max</b>	13.55	<b>97.0</b>
<b>BrakeWorst</b>	2.5	<b>m/sec2</b>		<b>Min</b>	2.53	<b>25.2</b>
<b>BrakeValRange</b>	11.5	<b>m/sec2</b>				
<b>BrakeMaxScore</b>	100.0	<b>Points</b>	<b>Timed Dist</b>	30.0	<b>feet</b>	
<b>BrakeMinScore</b>	25.0	<b>Points</b>	<b>FeetPerMeter</b>	3.3	<b>Feet</b>	
<b>BrakePointRange</b>	75.0	<b>Points</b>	<b>MPH2M_S</b>	0.4	<b>factor</b>	
			<b>Toffset</b>	0.3	<b>Secs</b>	

# 21ST CENTURY AUTOMOTIVE CHALLENGE

# Acceleration Event

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Car #	Car Name	Time1 (sec)	Time2 (sec)	Time3 (sec)	Best Time	Calc MPH	Accel m/s2	Score	Rank
14	Lorax	4.90	5.6	5.5	<b>4.90</b>	27.8	<b>2.54</b>	<b>45.2</b>	<b>4</b>
56	StMarks	4.78	4.83	5	<b>4.78</b>	28.5	<b>2.67</b>	<b>50.1</b>	<b>3</b>
"007"	RabbitPickup	4.95	5.7	6.4	<b>4.95</b>	27.5	<b>2.49</b>	<b>43.3</b>	<b>5</b>
16	ElecTecs/Cinn	4.10	4.3	4.5	<b>4.10</b>	33.3	<b>3.63</b>	<b>86.0</b>	<b>1</b>
99	The Quiet Revolution	4.28	5.4	5.49	<b>4.28</b>	31.9	<b>3.33</b>	<b>74.8</b>	<b>2</b>

**AccelBest**            4.0    **m/sec2**  
**AccelWorst**         2.0    **m/sec2**  
**AccelValRange**     2.0    **m/sec2**

$$a = Vf^2 / 2x$$

**AccelMaxScore**     100.0    **Points**            **Accel Distance**    100.0    **feet**  
**AccelMinScore**     25.0    **Points**            **FtperMeter**        3.3       **Feet**  
**AccelPointRange**    75.0    **Points**            **MPH2MS**            0.4       **factor**

## 21ST CENTURY AUTOMOTIVE CHALLENGE

## Autocross Event

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Car #	Car Name	Time 1 (sec)	Time 2 (sec)	Time 3 (sec)	Time 4 (sec)	Best Time	Score	Rank	Notes
<b>ELECTRICS</b>									
14	Lorax	41.80	34.7	32.13	31.47	<b>31.47</b>	<b>113.0</b>	<b>4</b>	
56	StMarks	29.44	28.6	33.40	37.70	<b>28.62</b>	<b>163.9</b>	<b>2</b>	<i>run 4 one cone</i>
"007"	RabbitPickup	33.23	31.6	30.81	30.76	<b>30.76</b>	<b>125.7</b>	<b>3</b>	
16	ElecTecs/Cinn	28.34	32.4	28.23	27.24	<b>27.24</b>	<b>188.6</b>	<b>1</b>	
99	The Quiet Revolution	Off Course	Off Course	Off Course	33.61	<b>33.61</b>	<b>74.8</b>	<b>5</b>	
<b>HYBRIDS</b>									
21	Philly Green	24.17	23.7	23.18	25.23	<b>23.18</b>	<b>261.1</b>	<b>2</b>	<i>run 4 one cone</i>
22	Philly Red	23.18	22.2	22.19	21.31	<b>21.31</b>	<b>294.5</b>	<b>1</b>	
31	hobbit	32.73	57.9			<b>32.73</b>	<b>90.5</b>	<b>4</b>	<i>2nd run battery only</i>
65	VW TDI	23.50	23.2	23.45	26.16	<b>23.20</b>	<b>260.7</b>	<b>3</b>	

<b>AutoXBest</b>	21.0	<b>sec</b>	<b>AutoXMaxScore</b>	300.0	<b>Points</b>	<b>"lower is better"</b>
<b>AutoXWorst</b>	35.0	<b>sec</b>	<b>AutoXMinScore</b>	50.0	<b>Points</b>	
<b>AutoXValRange</b>	14.0	<b>sec</b>	<b>AutoXPointRange</b>	250.0	<b>Points</b>	

# 21ST CENTURY AUTOMOTIVE CHALLENGE

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# Efficiency Event

Index	Car #	Car Name	Start Time	End Time	DeltaT Hours	Odo Start	Odo End	Odo Miles	Value Used	Vav	Iav
1	14	Lorax	13:55:01	14:10:12	0.25	84.2	90.6	6.4	6.4	178.60	30.70
2	56	StMarks	14:38:11	14:55:55	0.30	63.5	70.0	6.5	6.4	146.80	44.20
3	"007"	RabbitPickup	15:52:07	16:06:50	0.25	38.0	43.9	5.9	6.4	120.50	61.00
4	16	ElecTecs/Cinn	17:41:00	17:53:00	0.20	596.1	602.3	6.2	6.4	138.30	60.60
5	99	The Quiet Revolution	17:00:00	17:17:07	0.29	-	-	-	6.4	118.00	42.10

## Efficiency

Index	Car #	Car Name	Pav	Energy kWh	Effic Mi/kWh	Effic Wh/Mile	Effic Score	Rank
1	14	Lorax	5.48	1.39	<b>4.61</b>	<b>216.8</b>	<b>251.6</b>	<b>1</b>
2	56	StMarks	6.49	1.92	<b>3.34</b>	<b>299.6</b>	<b>92.2</b>	<b>5</b>
3	"007"	RabbitPickup	7.35	1.80	<b>3.55</b>	<b>281.7</b>	<b>118.7</b>	<b>4</b>
4	16	ElecTecs/Cinn	8.38	1.68	<b>3.82</b>	<b>261.9</b>	<b>152.3</b>	<b>3</b>
5	99	The Quiet Revolution	4.97	1.42	<b>4.52</b>	<b>221.4</b>	<b>239.5</b>	<b>2</b>

Vmax	Vmin
216.40	163.20
152.40	131.60
126.00	107.00
148.00	117.20
125.20	

## Efficiency

Index	Car #	Car Name	Payload Lbs	Calc MPH	Pay. Ind. All25MPH	Payload Index Mi-Lb-MPH/Wh	Payload Score	Rank
1	14	Lorax	410	25.3	47.3	<b>47.8</b>	<b>98.9</b>	<b>2</b>
2	56	StMarks	412	21.7	34.4	<b>29.8</b>	<b>60.2</b>	<b>5</b>
3	"007"	RabbitPickup	420	26.1	37.3	<b>38.9</b>	<b>79.8</b>	<b>4</b>
4	16	ElecTecs/Cinn	506	32.0	48.3	<b>61.8</b>	<b>128.9</b>	<b>1</b>
5	99	The Quiet Revolution	411	22.4	46.4	<b>41.6</b>	<b>85.7</b>	<b>3</b>

Imax	Imin
122.40	-70.00
239.20	-7.20
278.80	1.20
362.80	4.00
182.40	-2.40

Higher is better"

<b>EfficBest</b>	5.0	<b>Mi/kWh</b>
<b>EfficWorst</b>	3.0	<b>Mi/kWh</b>
<b>EfficValRange</b>	2.0	<b>Mi/kWh</b>

<b>EfficMaxScore</b>	300.0	<b>Points</b>
<b>EfficMinScore</b>	50.0	<b>Points</b>
<b>EfficPointRange</b>	250.0	<b>Points</b>

Higher is better"

<b>PayloadBest</b>	100.0	<b>Index</b>
<b>PayloadWorst</b>	25.0	<b>Index</b>
<b>PayloadValRange</b>	70.0	<b>Index</b>

<b>PayloadMaxScore</b>	200.0	<b>Points</b>
<b>PayloadMinScore</b>	50.0	<b>Points</b>
<b>PayloadPointRang</b>	150.0	<b>Points</b>