TEAM:	**#**

Station	**Grade**	**Comments**
Array *Chuzel*		
Driver *Hirtz*		
Body & Sizing *Hirtz*		
Electrical *McMullen*		
Battery Protection *Bohachick*		
Mechanical *Roberto*		
Dynamics *Call*		
Support *Lueck*		

TEAM:	**#**

Regulation	**Grade**	**Comments**
Solar Array Output		
Voltage		
Amperage		
Power		

Station Manager: _____

Entrance:

Array disconnected from battery.

Regulation \ Driver	Driver 1	Driver 2	Driver 3	Driver 4
3.7 Registration – All drivers are registered with headquarters (have id)				
3.8 Driver Req. – All drivers are 18 or older				
3.8 Driver Req. – Drivers have valid drivers license				
7.2.B Driver Shoes – Valid shoes				
3.8,A, 6.6 & 7.2.C Driver Ballast – Each driver ballasted to 80 kg (176 lbs)				
Driver Weight / Ballast Weight (driver weight includes driving clothes and shoes but not helmet)				
Color Tag / Security Marker				
6.4.E.2 Roll Cage – 5 cm clearance b/w roll cage and helmet, 3 cm clearance b/w padding & helmet				
6.4.C Distance to extents – min. 15 cm b/w shoulders, hips, feet, and outer body				
6.4.G Egress – 10 sec fully out of solar car, no wheel chocks, unassisted				
6.5.A Visibility – eye height = must be 70 cm or greater				
6.5.B Forward Vision - ground @ 8 m, 17° up, 100° side to side				
6.5.E Rear Vision - 15 m back, 30° L/R single reflex image				
Appendix E. Driver Training – not mandatory, but review with team				

TEAM:	**#**

Regulation	**Grade**	**Comments**
3.8 Driver/Pass Req. - There are a min. of 2 drivers / max. of 4		
7.2.A Driver Helmets – Meets or exceeds Snell M95 / DOT / ISO motorcycle		
7.2.E Water/Fluids – plan for water/fluid provision (1L min)		
7.4 & 7.4.B Radios/Communication – Driver in radio contact with chase verbal, hands free		
7.4.C Cell Phone in solar car – hand's free and fixed mounting		
6.6.B Ballast Access – located in solar car, and visible		

Station Manager:

_____

Entrance:

All drivers report with ballast material, helmet(s), proper driver/passenger uniforms with fully assembled solar car and radio communication

Station Grade:

Green = Pass
Blue = Needs improvement / Track Rayce Ready
Yellow = Needs improvement / Dynamic Test Ready
Red = Fail / Safety Hazard

TEAM:	**#**

Regulation	**Grade**	**Comments**
Body Signals		
5.9 Lighting – brake; red, visible 30° L/R, 15° U/D at 30 m, 50% of vehicle width separation, rear extremity		
5.9 Lighting – brake; red, visible 30° L/R, 15° U/D at 30 m, high mounted rear of vehicle canopy		
5.9 Lighting – rear turn; red/amber, visible 30° L/R, 15° U/D at 30 m, 50% of vehicle width separation, rear extremities		
5.9 Lighting – front turn; amber, visible 30° L/R, 15° U/D at 30 m, 50% of vehicle width separation, front extremities		
5.10 Horn – sound level b/w 75-102 dB @ 15 m, permanently mounted, steering wheel operated. Duration for 5 min potential		
Body Graphics and Dimensions		
3.10 Solar Car Numbers – approved color, 5 cm background, 25 cm high, 12 cm wide, 4 cm brush stroke, 2.5 cm spacing		
3.11 Institution Name – displayed on car with approved abbreviations and more prominent than any team sponsor logo/name no disruptive or offensive graphics		
3.12 Event Logo –space (20 cm H x 30 cm W) on both sides		
6.1 Solar Car Dimensions – Max. Dimensions L = 5.0 m W = 1.8 m H = 1.6 m		
6.1.B Rayce Configuration – body remains fixed (no reorientation/tilting) when moving under its own power		
6.1.A Charging Configuration – solar car body may split into two components; each component may not exceed the dimensions of the assembled car		
6.4.H Number of Occupants – Max. of (1)		

Cockpit		
6.4.A Seating Position – driver head above and behind feet. 27 degree or less, solid base & back rest		
6.4.B Belly Pan – full isolation and ability to support 80 kg. Driver above lower element of chassis		
6.4.E.1 Padding – roll cage padded around head meeting SFI-45.1 or better, 2 cm thick headrest		
6.4.E.1 Headrest – headrest provided with 2 cm thick padding		
6.4.F Outside Air Circulation – cockpit vents / intake vents		
6.4.G Egress – No tape used at egress point		
6.5.C & 6.5.D Windshield – shatter resistant, method to clear rain, distortion free		
Raycing Requirements		
6.11 Towing Hardpoint and tow strap for breakdowns per track regs		
6.13 Data logger – position for exposure to sky and fixed in position		
Vehicle Weight and Tires		
Vehicle Weight **LF -** **RF-** **LR-** **RR-** **Total:**		
6.3 Tire Sets – tire configurations meet loading requirement, min 3 points of contact		
6.3A Tire Ratings – weight <wheel rating> tires inflated w/in manf. rating tube-type tires need tubes		
Tire Set Configuration NOTES:		

Solar Array Sizing		
5.2 Style **_____ 6m^2 of solar cells from approved list (5.2.C)**		
3.5.F Solar Cell Technology – Solar cells match information given on approval form		
5.2.D Grandfathered array – matches agreement with ASC		

Station Manager:

_____

Entrance:

Driver in fully assembled solar car

Station Grade:

Green = Pass
Blue = Needs improvement / Track Rayce Ready
Yellow = Needs improvement / Dynamic Test Ready
Red = Fail / Safety Hazard

TEAM:	**#**

Regulation	**Grade**	**Comments**
5.1 Power – Solar array is present, no non-solar power sources		
5.3.A Battery Max weights _____ Pb-acid sealed (110 kg) _____ NiMH (45 kg) _____$LiFePo_4$ (30 kg _____ Li-ion / Li Polymer (20 kg) _____ 5.3.B. (Other)		
5.5.D Battery Ventilation – 280 L/min to exterior vent, operates with battery switch		
5.5.A Battery Enclosures – isolated w/ 1 MΩ to frame, non-conductive, labeled		
5.7.B External Cutoff Switch – properly marked and rated for load		
5.13 Electrical Shock Hazards – protected and marked w/ 10 mm labels		
5.4.E Other Storage Techniques – Power condensers or flywheels		
5.5 & 7.16 Battery Removal – batteries can be removed and have appropriate storage case		
3.4.E & 5.4 Storage Batteries – match submitted approval form		
5.4 Battery Pack Weight		
5.5.B Battery Mounting		
5.4.C Supplemental Batteries – radios, meters, telemetry, driver fan, main disconnect relay, horn only		
5.6 Main Fuse - < 200% Ip, first in series		
5.7.A Power Switch – manual switch capable to interrupt Ip, 10 mm labels, normally open		
5.2 Electrical Connection – between array and car are carried internally		
5.8 Cable Sizing – proper size for Ip		
5.11 Accelerator – zero return, brake shutoff on cruise control		
5.12 Control – driver has sole control		

Station Manager:

_____

Entrance:

To be announced.

Station Grade:

Green = Pass
Blue = Needs improvement / Track Rayce Ready
Yellow = Needs improvement / Dynamic Test Ready
Red = Fail / Safety Hazard

TEAM: **#**

BATTERY PROTECTION SYSTEM OVER VOLTAGE (OV) TEST

☐ String ☐ Module ☐ Cell – Test Level ☐ Pass ☐ Fail

Nominal Voltage: _____ Vnom @ ___ °C
Max Voltage: _____ Vmax @ ___ °C
BPS Max Trip: _____ Vmax_trip
☐ Filtering ☐ Delay

BPS V Resolution: _____ Bit
BPS V Range: _____-_____ VDC
BPS Sample Rate: _____ S/s
BPS Disconnect Delay: ___ s

BATTERY PROTECTION SYSTEM UNDER VOLTAGE (UV) TEST

☐ String ☐ Module ☐ Cell – Test Level ☐ Pass ☐ N/A ☐ Fail

Nominal Voltage: _____ Vnom @ ___ °C
Min Voltage: _____ Vmin @ ___ °C
BPS Min Trip: _____ Vmin_trip
☐ Filtering ☐ Delay

BPS V Resolution: _____ Bit
BPS V Range: _____-_____ VDC
BPS Sample Rate: _____ S/s
BPS Disconnect Delay: ___ s

BATTERY PROTECTION SYSTEM OVER CURRENT (OC) TEST

☐ String ☐ Module – Test Level ☐ Pass ☐ N/A ☐ Fail

Max Current: _____ Imax @ _ _ °C

BPS I Trip: _____ Imax_trip
☐ Filtering ☐ Delay

BPS I Resolution: _____ Bit
BPS I Range: _____-_____ VDC
BPS Sample Rate: _____ S/s
BPS Disconnect Delay: ____ s

BATTERY PROTECTION SYSTEM OVER TEMPERATURE OT) TEST

☐ String ☐ Module ☐ Cell – Test Level ☐ Pass ☐ N/A ☐ Fail

Max Operating Temperature: _____ °C

BPS T Trip: _____°C Tmax_trip

BPS T Resolution: _____ Bit
BPS T Range: _____-_____ °C
BPS Sample Rate: _____ S/s
BPS Disconnect Delay: _____ s

Station Manager:

_____

Entrance:

To be announced.

Station Grade:

Green = Pass
Blue = Needs improvement / Track Rayce Ready
Yellow = Needs improvement / Dynamic Test Ready
Red = Fail / Safety Hazard

TEAM:	**#**

Regulation	**Grade**	**Comments**
3.5.B Structural Report – Vehicle matches structural report		
5.5.B Battery Enclosures – structurally sound and properly secured to chassis		
6.6.A Ballast Carrier – structurally sound and properly secured to chassis		
6.2 Body panels and array – securely fastened to prevent unintended movement		
6.2.A Covers and Shields – all moving parts protected against contact. Driver shielded from steering linkage and other moving parts		
6.2.B Clearance – moving parts are interference free		
6.2.B Steering Static Test – can turn lock to lock while still, no excessive play in steering		
6.3 Wheels – Wheels meet the minimum requirements		
6.4 Driver cockpit – designed for protection, will not cause undue strain		
6.4.D Safety Belts – commercial 5 pt., proper positioning of attachment points, properly attached with nuts and bolts		
6.4.E Roll Cage – designed to encompass driver in all directions, integral part of chassis		

Critical Areas (Reg 6.7.D)	Steering	Brakes	Front Suspension	Rear Suspension	Seat/Safety Harness	Drive Train	Battery Box	Ballast Box
6.7 - Critical Areas do not use friction or press fit assemblies								
6.7.A Bolts – SAE grade 5, M 8.8 or AN/MS on critical systems, two threads beyond nut, no shaved heads								
6.7.B Securing Bolts – safety wire, cotter pins or flex-loc nuts								

Fasterner/Hardware Notes:	
6.7.C Securing Rod-Ends – All rod-ends secured with jam nuts	
6.10.A Steering Wheel – continuous perimeter steering wheel. Ref. Appendix A	
6.10.B Steering stops – in place and functional	

6.8 Brakes – dual independent and balanced co-reactive		
6.8.A Brake Pads – contact area > 6.0 cm^2, initial thickness >= 6.0 mm		
6.8.C Brake Lines – appropriately sized and constructed		
6.8.D & 6.8.E Pedal Placement - brake pedal activation, spacing between pedals		
6.8.F Hand Brakes – if equipped – lock-to-lock use without repositioning hands		
6.9 Parking Brake – equipped with working parking brake (must hold 10% of vehicle weight in both directions) VEHICLE WEIGHT =		FORWARD PULL: REAR PULL:

Station Manager:

_____

Entrance:

Vehicle disassembled in team pit

Station Grade:

Green = Pass
Blue = Needs improvement / Track Rayce Ready
Yellow = Needs improvement / Dynamic Test Ready
Red = Fail / Safety Hazard

TEAM:	**#**

Regulation	**Grade**	**Comments**
U-Turn Test		
6.10.C Turning Radius – wheels turn inside 16 m wide lane		RIGHT TURN: LEFT TURN:
Figure-8 Test		
6.3 Tire and Wheel Requirements – all wheels must remain on the ground		
6.2.B no body work shall contact moving structural members		
6.12 Dynamic Stability – vehicles must exhibit sufficient stability during test		
6.12.A Figure 8 – vehicle must negotiate figure-8 course in less than 9 seconds per side w/o hitting cones or showing signs of instability		TIME FOR FIGURE-8:
Braking Test		
6.12 Dynamic Stability – vehicles must exhibit sufficient stability during test		
6.8.B, 6.12.D Braking Performance – vehicle must decelerate from >= 50 km/h (31 mph) at > 4.72 m/s^2 to a complete stop w/o excessive veering or signs of instability (mechanical braking only)		TIME: SPEED:
Slalom Test		
6.12 Dynamic Stability – vehicles must exhibit sufficient stability during test		
6.12.C Slalom Test – Negotiate slalom course within appropriate time (11.5 s)		TIME: SPEED:
High Speed Stability		
6.12 Dynamic Stability – vehicles must exhibit sufficient stability during test		
6.12.B Stability at Speed – Maintains constant speed in a 3.5 meter lane		SPEED:

Station Manager: _____

Entrance:

All drivers report to station with car, Green, Blue, or Yellow from Body & Sizing, Electrical, Mechanical, and Driver/Passenger Stations with radio communication

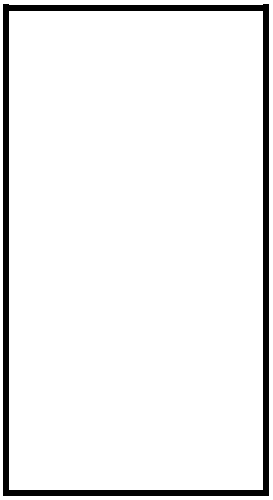
Station Grade:

Green = Pass
Blue = Needs improvement / Track Rayce Ready
Yellow = Not available at this station
Red = Fail / Safety Hazard

TEAM:	**#**

Regulation	**Lead**	**Chase**	**Scout**	**T&T**	**Other**	**Comments**
Support Vehicles (7.3, 7.3.A – 7.3.D)						
All vehicles registered with ASC HQ						
Max 15 passenger van				/	/	
Roof mounted amber lights			/	/	/	
GPS for observer viewing	/		/	/	/	
Storage racks are secure and safe						
Support Vehicle Graphics (7.3.E)						
Organization Name						
Solar Car Number on both sides & rear (at least 25 cm tall, with a 4 cm brush stroke)						
Solar Car Number on top passenger's side of windshield (at least 15 cm tall)				/	/	
Event Logo – provided on-site (both sides of each vehicle and trailer)						
Slow Moving Caravan Sign	/		/	/	/	
Radio Communication (7.4)						
Communication with solar car driver, which observer can monitor			/	/	/	
Hand's free comm. for all vehicle drivers						
Separate CB channel for ASC communications in all vehicles on route						
Safety Equipment (minimum requirements)						
Certified, stocked First Aid Kit						
ABC Fire Extinguisher						
Safety Vest (1 per person in vehicle)						
4 Orange Cones (minimum 12" high)						
Orange Warning Flag						
Battery MSDS, Spill Kit, and method of containment of battery fires	N/A		N/A	N/A	N/A	

Safety Officer and Demonstration	**Grade**	**Comments**
4.4.A Safety – Team Safety Officer Name: _____		
4.4.A Safety officer provides proof of First Aid and CPR training		
Demonstration of roadside safety procedures by team (role play)		



Station Manager:

_____

Entrance:

All team vehicles with all equipment.
Lead and chase vehicles with all equipment and team members who will be in those vehicles; safety officer must be present

Station Grade:

Green = Pass
Blue = Not available at this station
Yellow = Not available at this station
Red = Fail / Safety Hazard