NASCAR XFINITY SERIES OEM BODY APPROVAL PROCESS

Released: 02/25/25

1. Introduction

1.1 Goals

The goals of the NASCAR Xfinity Series OEM Body Approval Process are as follows:

1. To ensure aerodynamic parity among all competing OEMs.
2. To allow and encourage OEMs to produce race vehicle body designs that bear a strong resemblance to the OEM production vehicles.

1.2 Purpose

The purpose of this document is to define the process an OEM will use to obtain approval for a race vehicle body design for the NASCAR Xfinity Series.

1.3 Scope of Process Use

This process is intended for the following circumstances:

1. When an OEM changes the production vehicle body design on which their race vehicle body is based.
2. When an OEM wishes to introduce a new production vehicle model design into competition.
3. When an OEM changes the race vehicle body design without changing their production vehicle design if allowed by NASCAR due to a demonstrable problem.

1.4 Process Initiation

To begin the NASCAR Xfinity Series OEM Body Approval Process, an OEM must complete and submit the NASCAR Xfinity Series OEM Body Approval Process Initiation Request Form in Figure 1.

1.5 Decision Making Process

Much effort has been made to produce a very objective and well-defined process, but due to the influence of competition, aesthetics, and product relevance among other things, at times NASCAR must make decisions for which defined procedure and past relevant precedents do not exist. When decisions of this nature are made, this document will be updated when possible to reflect those decisions.

2. Production Vehicle Model Eligibility

The production vehicle model on which the race vehicle will be based must be approved by NASCAR. NASCAR will base production vehicle approval on the following criteria among other things:

1. Production vehicle models must be mass produced passenger vehicle production cars sold at US dealerships.
2. The production vehicle model must be sold sometime during the race season in which the race vehicle is introduced. The race season is defined as the start of the first event until the end of the final event.

NASCAR Xfinity Series OEM Body Approval Process Initiation Request Form

OEM Company Name	
OEM Representative Name*	
Vehicle Model Name	
Vehicle Model Year	
Production Vehicle Start of Production Date (Following or Leading Strategy?)	
Race Season Year to Debut (Must debut race vehicle at 1st race event)	

*The designated OEM Representative listed on this form has OEM decision making authority at official wind tunnel tests. If the designated OEM Representative is not present at the test, the OEM must designate an alternate representative with decision making authority.

email completed form to: Chris Popiela. cpopiela@nascar.com

Figure 1. NASCAR Xfinity Series OEM Body Approval Process Initiation Request Form

3. **Event Deadlines**

Event deadlines for the NASCAR Xfinity Series OEM Body Approval Process are listed in Table 1 below. The first event deadline year listed is two years prior to the race season for which the race vehicle will be introduced. That is, the first event deadline listed below would be September 1st, 2015 for a race vehicle to be entered at the first race Event of the 2017 race season. As such, the notation 20xx-2 is used. This convention is followed for all dates in Table 1.

3.1 **Leading Strategy and Following Strategy Definition**

A Leading Strategy occurs when the race vehicle race Event debut leads the production vehicle start of regular production. A Following Strategy occurs when the race vehicle race Event debut follows the production vehicle start of regular production. See the Frequently Asked Questions section at the end of this document for a graphic with an example of the Leading Strategy and Following Strategy.

Table 1: Event Deadlines (Events must occur in the order listed by the event deadline listed.)

Event Number	Event Deadline (end of day)	Responsibility	Event	Additional Details and Requirements
#1	September 1st, 20xx-2	OEM	Submit NASCAR Xfinity Series OEM Body Approval Process Initiation Request Form.	
#2	Event #1 delivery date plus 14 days	NASCAR	Provide written communication granting approval to begin the NASCAR Xfinity Series OEM Body Approval Process or provide written communication requesting additional information and conditions with a specified deadline.	Communication from NASCAR will specify whether the Leading or Following Strategy event deadlines will be used.
#3	October 1st, 20xx-2 for a Following Strategy (or January 15th, 20xx-1 for a Leading Strategy)	OEM	Display production vehicle and race vehicle renderings, photos, or models to ~~the following~~ NASCAR designated personnel~~: (1) Executive Vice President and Chief Racing Development Officer, (2) Vice President, Innovation and Racing Development, and (3) Senior Vice President, Competition~~. Submit completed Body Panel Change Matrix and Race Vehicle Styling Features List.	For the renderings or photos, five side-by-side images of race vehicle and production vehicle: Front, right side, rear, left front ¾ view, left rear ¾ view. Five sheets total are required with a minimum sheet size of 8.5 inches x 11 inches. Each sheet should contain one of the specified views of the production vehicle and the race vehicle side-by-side. Digital images are acceptable. The Race Vehicle Styling Features List is a list of words describing features from the production vehicle that will be represented in the race vehicle. (Example: We will replicate the production vehicle hood character lines in the race vehicle as much as possible. The character lines in the race vehicle hood will be deeper than in the production vehicle to stand out while on the race track.) Other key features of the body design and the justification for the features should be listed.

#4	Event #3 delivery date plus 14 days	NASCAR	NASCAR ~~Vice President, Innovation and Racing Development~~ provides written communication granting OEM approval to proceed with process or provide written communication directing changes with a specified deadline for the changes.	

#5	April 1st, 20xx-1	OEM	Display a prototype full scale race vehicle side-by-side with a representative full-scale production vehicle to ~~the following~~ NASCAR designated personnel~~: (1) Executive Vice President and Chief Racing Development Officer, (2) Senior Vice President, Innovation and Racing Development, and (3) Senior Vice President, Competition~~. NASCAR to take photos of the race vehicle for future reference. ~~Senior Vice President, Innovation and Racing Development signs NDA and retains data storage device with captured photos~~.	For a Leading Strategy, a 1/8th scale model may be used in lieu of a full-scale production vehicle. NASCAR and OEM to compare Race Vehicle Styling Features List to race vehicle and production vehicle at this time. For both Leading and Following, a full-scale race vehicle must be used.
#6	Event #5 delivery date plus 14 days	NASCAR	NASCAR ~~Vice President, Innovation and Racing Development~~ provides written communication granting OEM approval to proceed with the process or provide written communication directing changes with a specified deadline for the changes.	
#7	Event #11 minus 30 days	OEM	Inform NASCAR and competing OEMs of official wind tunnel test 1 in writing.	

#8	Event #11 minus 30 days	OEM	Deliver preliminary baseline (at least one design) race body design CAD file and GOM inspection report for official wind tunnel test 1 via the NASCAR scanning provider. NASCAR will work with submitting OEM so that they have necessary CAD for flange fit body seams. NASCAR to use photos from event #5 for comparison.	It is the OEM's responsibility to have the NASCAR scanning provider provide the CAD file and inspection report to NASCAR by the deadline. If additional body designs differ greatly from the baseline design, it is advisable to submit all designs at this time.
#9	Event #8 delivery date plus 10 days	NASCAR	Provide written communication granting approval to proceed or provide written communication directing changes with a specified deadline for the changes.	

#10	Event #11 minus 5 days	OEM	All CAD files and design inspection reports for bodies to be tested at wind tunnel test 1 must be in NASCAR's possession. OEM must designate a max of three CAD files for the bodies to be tested.	It is the OEM's responsibility to have the NASCAR scanning provider provide the CAD files and inspection reports to NASCAR by the deadline.
#11	July 1st, 20xx-1	OEM	Official wind tunnel test 1	
#12	Event # 14 minus 30 days	OEM	Inform NASCAR and competing OEMs of official wind tunnel test 2 in writing.	
#13	Event #14 minus 5 days	OEM	All CAD files and design inspection reports for bodies to be tested at wind tunnel test 2 must be in NASCAR's possession. OEM must designate a max of three CAD files for the bodies to be tested.	It is the OEM's responsibility to have the NASCAR scanning provider provide the CAD files and inspection reports to NASCAR by the deadline.
#14	August 15th, 20xx-1	OEM	Official wind tunnel test 2	

#15	Event #11 or event #14 plus 10 days	NASCAR	Provide written communication granting conditional approval or rejection of exterior body shape.	
#16	October 1st, 20xx-1	OEM	Deliver body seams CAD file.	
#17	October 20xx-1 Parts Approval Meeting	NASCAR	Present OEM body design and wind tunnel results to NASCAR personnel in October (or earlier) Parts Approval Meeting.	
#18	Event #17 plus 15 days*	NASCAR	Official communication from the parts approval meeting will inform the OEM of the Parts Approval Committee decision.	*Typical timing but is dictated by Parts Approval Process.
#19	May 1st, 20xx	OEM	Deliver example race vehicle, vehicle scan and scan report to NASCAR.	

4. Body Geometric Design Requirements

For design purposes, all dimensions are considered to have infinite precision. Dimensional constraints and submitted CAD dimensions will not be rounded or truncated.

4.1 OEM Specific Geometric Design Requirements

4.1.1 Race Vehicle to Production Vehicle Comparisons

Comparisons between the race vehicle and production vehicle will be made using the following tools and events: Body Panel Change Matrix Form and Race Vehicle Styling Features List (Figure 2), renderings and photos, the scheduled model display events (see Table 1), private and official wind tunnel tests.

This process is intended to encourage resemblance between race vehicles and production vehicles. NASCAR will use its discretion in making decisions related to resemblance and OEM identity. If the production vehicle changes after the April 1st event (see Table 1), the OEM must inform NASCAR of the changes and display the changes to NASCAR.

4.1.2 OEM Common Geometric Design Requirements

OEM common geometric design requirements are contained in drawing B-001-00232D-14.

4.1.3 Submission Requirements:

1. OEM CAD files must be submitted in the .stp format.
2. Each OEM body to be tested requires a unique CAD file.
3. The OEM must submit their CAD files to NASCAR via the NASCAR scan supplier. The scan supplier will transfer the CAD files and inspection reports proving compliance to the design requirements to NASCAR
4. An OEM may test a maximum of three bodies per official wind tunnel test. Bodies submitted for official wind tunnel test 1 may be resubmitted for wind tunnel test 2.

Body Panel Change Matrix Form and Race Vehicle Styling Features List

OEM Company Name	
OEM Representative Name	
Vehicle Model Name	
Model Trim Package (i.e. SS, Sport, etc.)	
Vehicle Model Year	
Production Vehicle Start of Production Date (Following or Leading Strategy?)	
Race Season Year to Debut (Must Debut Race vehicle at 1st event)	

Body Panel	Production Vehicle Change		Race Vehicle Change	
	Yes	No	Yes	No
Front Bumper Cover				
Fenders				
Hood				
Windshield				
A-Posts				
Roof				
B-Posts				
C-Posts				
Rear Window				
Deck Lid				
Deck Lid Extension Panel				
Rear Bumper Cover				
Sides (Doors Area)				
Door Side Windows				
Quarter Windows				
Quarter Panels				

Email completed form to: Chris Popiela. cpopiela@nascar.com

Describe Styling Features to be represented in the Race Vehicle in the space provided.

Body Panel	Race Vehicle Styling Feature Description
Front Bumper Cover	
Fenders	
Hood	
Windshield	
A -Posts	
Roof	
B -Posts	
C -Posts	
Rear Window	
Deck Lid	
Deck Lid Extension Panel	
Rear Bumper Cover	
Sides (Doors Area)	
Door Side Windows	
Quarter Windows Quarter Panels	

Figure 2. NXS Body Panel Change Matrix Form

5. **Wind Tunnel Tests**

The flow chart in Figure 3 below governs the major steps for one official wind tunnel test. An OEM may not begin more than two official wind tunnel tests when attempting to obtain approval for a race season. If the submitting OEM elects to use official wind tunnel test 2, the OEM forfeits the aerodynamic results of any body designs that fell within the Approval Band from official wind tunnel test 1 but may resubmit the same body designs used in official wind tunnel test 1. Underperforming body designs from test 1 and test 2 may be Preserved. See section 5.7 for the definition of a Preserved body. In extenuating circumstances, NASCAR has the right to grant additional official wind tunnel tests.

5.1 **Official Wind Tunnel Test Rules**

1. The submitting OEM is responsible for scheduling and paying for both the wind tunnel occupancy and the NASCAR selected and approved scanning services.
2. The submitting OEM is responsible for informing the other OEMs of the test day and time. The submitting OEM must inform NASCAR and the other OEMs a minimum of 30 days prior to an official wind tunnel test.
3. If an OEM cancels an official wind tunnel test within 120 hours of the scheduled official wind tunnel test, the cancelled test counts as an attempt and the OEM forfeits the cancelled test.
4. The submitting OEM must inform the wind tunnel and scanning personnel in writing that NASCAR is the official customer and has the final decision-making authority in all matters related to the test, scan, and distribution of data.
5. Up to three representatives from each OEM competing in the Xfinity Series are allowed at the tests.
6. In addition, up to four hands-on OEM team members representing the submitting OEM may be used for body installation and removal. Hands-on team members must remain outside of the wind tunnel control room for the entire test.
7. The submitting OEM is responsible for the delivery of their bodies.
8. The submitting OEM is responsible for the installation and removal of their bodies.
9. All testing will be conducted under the guidance and observation of NASCAR officials.
10. The seven-hour countdown begins when the target body is completely removed from the submission chassis.
11. If a body design has been fully installed and ready for final scanning prior to the countdown clock expiring, that body submittal may proceed.
12. The official time will be kept by NASCAR and will be visible to all participants in the control room. NASCAR may choose to add time or restart a run due to issues out of the control of the submitting OEM. Qualifying example: Tunnel malfunction. Non-qualifying example: OEM parts failure.
13. A trial run will be the same height and yaw matrix as an official run used a maximum of three times (i.e. three wind tunnel runs total).
14. Coefficient data will be released to all OEMs.
15. Pictures of the target body acquired by the wind tunnel data acquisition system will be released to all OEMs. Pictures of the submitted OEM body will only be released to NASCAR and the submitting OEM.

16. Scan data of the submitted OEM bodies will only be released to NASCAR and the submitting OEM.
17. If an OEM's body's design coefficients fall within the Approval Band, the prototype body components must remain in NASCAR's possession.
18. A Preserved body must remain in NASCAR's possession.

5.2 OEM Prototype Body Panel Requirements

The OEM must produce prototype body panels matching the submitted CAD files from composite components and designed to fit on the NASCAR submission chassis and meet the following requirements for official wind tunnel tests:

1. Except for the fasteners connecting the OEM components to the submission chassis, all external fasteners must be flush. All non-flush fasteners must match the fasteners used in the NASCAR target components.
2. All rivets must be permanent. That is, a drill bit should not be required for installation and removal of OEM test components.
3. The hood must be removable. If used, the OEM hood hinges must match the submission chassis hood hinges in size.
4. Four hood pins and hood pin bezels are required. Contact NASCAR for the current hood pin and bezel part numbers and requirements. The longest dimension of the hood pin clips must be perpendicular to the vehicle longitudinal centerline (x-axis) when installed.
5. The NASCAR submission chassis may not be modified, except as approved by NASCAR and as necessary to accommodate mounting of OEM body panels. Every reasonable effort must be made to work with existing body mounts.
6. OEM body panels should be stiff enough to maintain shape without requiring permanent stiffeners affixed to the NASCAR submission chassis. A minimum number of temporary stiffeners to the submission chassis may be used and the panels must be sufficiently stiff as determined by NASCAR by making comparisons to the NASCAR target body and previously approved OEM bodies. OEMs are encouraged to view the NASCAR target body for generally acceptable practices.
7. Small ancillary body parts (example: headlight rapid prototype surface addition to change shape of headlight) may be attached to a base body part, but must be mudded in. Mud/Bondo, etc. may only be used to blend existing parts but not to create new features. This requirement is waived for a trial run. The front fascia test article may consist of up to 3 separate sections but must be securely fastened to a composite base structure.
8. Except for at seams between major body panels, visible tape is not allowed. Tape may be mudded/bondoed over if used to secure feature.
9. No Inward facing return flanges permitted in wheel openings. The maximum thickness within 1.0 inch of the wheel opening must be 0.200 inches.
10. OEM body panels may only be test fit on the NASCAR submission chassis at the NASCAR R&D Center.
11. The prototype body surface must match the CAD file within +/-0.125 inches for a coordinate system alignment.
12. Brake duct and radiator inlet areas must be closed, and brake ducts not installed.
13. The OEM rear bumper cover will not be tested. The target rear bumper cover on the NASCAR submission chassis is permanently installed.

5.3 **Target Body**

The aerodynamic configuration (splitter, splitter extension panel, and spoiler) to be used will be the 2016 non-Superspeedway intermediate track rules package. The target body will be adjusted to fit the target body CAD file to a tolerance of +/-0.125 for a coordinate system alignment. The target body CAD file is the scan file generated at the July 18th, 2014 AeroDyn wind tunnel test.

5.4 **Wind Tunnel Test Conditions**

5.4.1 **Location**: AeroDyn Wind Tunnel – Mooresville, NC.

Alternate plans in case AeroDyn is unavailable have not yet been developed. NASCAR is open to suggestions in this regard.

5.4.2 **Test Parameters**

Table 2 below contains dimensions, constants, and settings applicable to the wind tunnel tests. Table 3 below lists the height and yaw matrix to be used. The Ram Deltas (from inspection height) listed in Table 3 will be used for an official test. The other height data in Table 3 are for reference only. Inspection height is defined as a 5.500-inch splitter height to the top leading edge of the splitter at two reference points 23.00 inches left and right from the vehicle x-axis and a rear chassis reference height that places the spoiler nominally at inspection height.

Table 2. Test Constants

Name	Value
frontal area	24.111 ft^2
wheel base	110 inches
nominal wind speed	130 mph
nominal tire speed	130 mph
tares	tare at point 1 (see Table 3).
vehicle fore/aft position	14.6875 inches for a 2.25-inch protruding splitter (x=-99.375 inches)

Table 3. Height and Yaw Matrix

Point #	*Travels (Delta from Inspection Height at Axle, inches)*		*Roll Angle (Deg.)*	*Yaw Angle (Deg.)*	*Ram Deltas (inches)*		*Centerline Leading Edge Splitter Gap measured at x=-99.375inches) (inches)*	*Pitch (inches)*
	Front	Rear			Front	Rear		
1	-3.283	-2.000	0.0	0.0	3.096	2.169	1.25	1.283
2	-3.783	-2.500	0.0	0.0	3.596	2.669	0.75	1.283
3	-3.783	-2.500	0.0	-3.0	3.596	2.669	0.75	1.283
4	-3.917	-3.000	0.0	-3.0	3.7840	3.121	0.75	0.917
5	-3.650	-2.000	0.0	-3.0	3.410	2.218	0.75	1.650

NASCAR tire set B shall be used for official wind tunnel tests.

5.5 **Official Wind Tunnel Test Sequence**

Table 4 below lists the test steps and typical approximate times assuming the test begins at 6:00 AM for an official wind tunnel test. All steps for the target body listed below are required. The OEM body steps below are typical and may vary depending on the submitting OEM's decisions. See Figure 3 for potential OEM steps. In all cases, for an official run, the loose tape check is required following the warmup. The warmup runs shall be completed using the same yaw and height matrix as used for Test runs. Data shall be acquired during the warmups but will not be considered official.

Table 4. Typical Official Wind Tunnel Test Sequence

Start Time	Typical Duration	Body	Event
6:00	30	Target	Install submission chassis with target body components installed.
6:30	5	Target	Shake down
6:35	5	Target	Reset inspection height
6:40	30	Target	Scan
7:10	30	Target	Warmup
7:40	5	Target	Tape check
7:45	30	Target	Test (3 runs). Calculate targets.
8:15	10	Target	Remove target body. OEM hands-on personnel may assist. Countdown clock begins when target body is fully removed.
8:35	15	OEM	Install OEM Body
9:20	15	OEM	Scan
9:50	30	OEM	Warmup
10:20	5	OEM	Tape check
10:25	30	OEM	Test (3 runs)

5.6 **Aerodynamic Coefficients**

For the target and OEM bodies, C_D, C_L, and C_S for each individual run number are calculated as follows. Cd1 denotes Cd for height and yaw point 1 from the Table 3, etc.

$$C_D = (C_{D1} + C_{D2}) / 2$$
$$C_L = (C_{L2} + C_{L3} + C_{L4} + C_{L5}) /4$$
$$C_S = (C_{S3} + C_{S4} + C_{S5})/ 3$$

For the target and OEM bodies, average coefficients are calculated by taking the average of C_D, C_L, and C_S for each of the three runs. The target body average coefficients are referred to as C_DAVG, C_LAVG, and C_SAVG. The OEM average coefficients are referred to as C_DOEM, C_LOEM, and C_SOEM.

The maximum performance targets and minimum performance targets are calculated from C_DAVG, C_LAVG, and C_SAVG as described below:

$$C_D\text{MaxPTarget} = C_D\text{AVG} - 0.000$$
$$C_L\text{MaxPTarget} = C_L\text{AVG} - 0.000$$
$$C_S\text{MaxPTarget} = C_S\text{AVG} - 0.033$$

The minimum performance targets are calculated as follows:

$$C_D\text{MinPTarget} = C_D\text{MaxPTarget} + 0.005$$
$$C_L\text{MinPTarget} = C_L\text{MaxPTarget} + 0.012\ C_S\text{MinPTarget}$$
$$= C_S\text{MaxPTarget} + 0.006$$

When OEM average coefficients meet the following criteria, they are defined as falling within the Approval Band.

$$C_D\text{MaxPTarget} < C_D\text{OEM} < C_D\text{MinPTarget}$$
$$C_L\text{MaxPTarget} < C_L\text{OEM} < C_L\text{MinPTarget}$$
$$C_S\text{MaxPTarget} < C_S\text{OEM} < C_S\text{MinPTarget}$$

Figure 4 below graphically displays examples of OEM average coefficients that fall within the Approval Bands. For this example, all the OEM average coefficients (represented by the green diamonds) fall within the Approval Bands. An underperforming design is defined as an OEM design that under performs for one or more coefficients and does not over perform for any of the coefficients. Underperforming body designs are eligible to be Preserved by the OEM.

5.7 **Preserved Bodies**

An underperforming body may be Preserved. All parts of a Preserved body must remain in NASCAR's possession and must not be altered. The following are examples of components that may be Preserved: Complete upper front bumper cover, complete hood, complete rear bumper cover. The following is an example of an un-Preserved component: If headlights are removed from design 1 to obtain design 2, design 1 is un-Preserved. In this regard, NASCAR will use its discretion to decide if a particular assembly or part may be Preserved. Preserved parts may not be used in OEM private testing. If parts remain on the submission chassis during an official wind tunnel test, the parts are considered to be in NASCAR's possession.

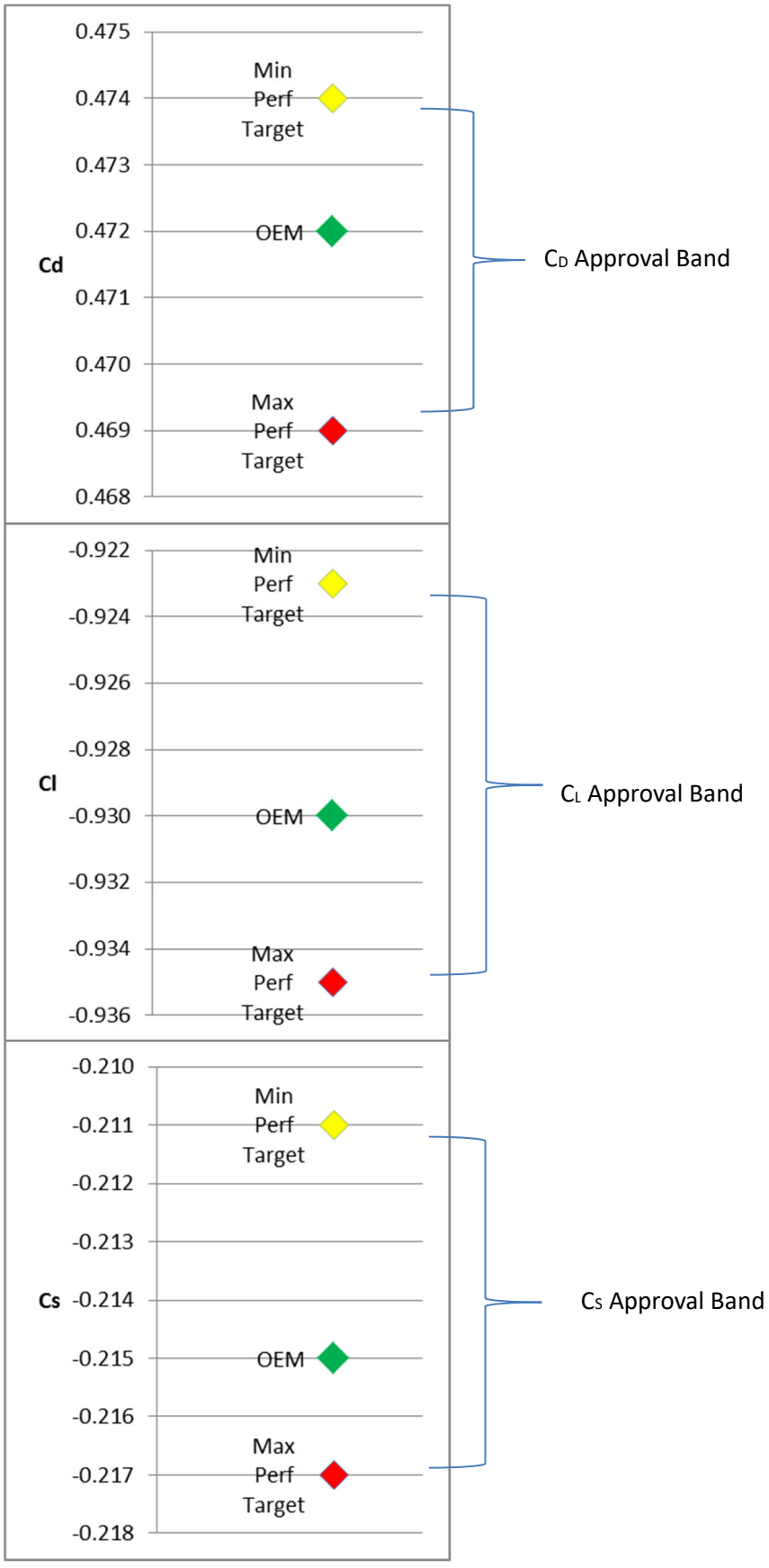


Figure 4. Approval Band Example

5.8 **Significant Digits**

The aerodynamic coefficients output from the wind tunnel data acquisition system will not be rounded or truncated. The coefficients (C_D, C_L, and C_S) will be taken directly from the data acquisition system and used to calculate all coefficients referred to in this document. The calculated coefficients will not be rounded or truncated for comparison.

5.9 **OEM Private Testing**

OEMs may borrow the NASCAR submission chassis for private wind tunnel tests to prepare for the official wind tunnel tests. The OEM must notify NASCAR a minimum of three weeks in advance of a private wind tunnel test. It is desirable for an OEM to schedule all anticipated private and official wind tunnel tests at the beginning of the process. The OEM must supply a detailed test plan to NASCAR one day prior to the private test. The OEM must supply NASCAR all data and photos from private tests. There is no restriction to wind tunnel hours or computational fluid dynamics (CFD) simulations used during the body approval process.

Following a new OEM's inaugural body submission, 45 additional wind tunnel hours are permitted to be used between submission and the end of the vehicle's debut season. A new OEM will be budgeted the current wind tunnel hours permitted in the year of submission and the debut year.

6. **Example Race Vehicle**

The OEM must maintain a functional appearing example race vehicle at the R&D Center that meets all body rules for the current race season. The OEM must update the example race vehicle after the announcement of the rules by NASCAR for the following season by February 1st of the new race season to the track configuration specified by NASCAR.

6.1.1 **Example Race Vehicle Requirements:**

1. Must meet one of the current aerodynamic configurations as defined by NASCAR.
2. Must use all final production body components.
3. The OEM must provide a scan and scan report of the example race vehicle body. The scan report must show that the race vehicle body meets the current surface conformance rules.
4. The complete OEM decal package must be installed on the example race vehicle.
5. The example race vehicle must appear high quality and externally complete. The chassis must be painted. Dummy powertrain parts are permitted.
6. The body must be one solid color and may contain a hood width OEM emblem decal.
7. The paint and decal scheme must be approved by NASCAR.
8. All tires should have inner tubes installed.

7. **Body Inspection Template Production Process and Typical Timeline**

NASCAR produces body inspection template designs from the approved OEM body CAD file. Table 5 below contains an example timeline for template production.

Table 5. Typical Body Inspection Template Production Timeline

Date	Event
45 Days after conditional approval communication date and all needed data is supplied to NASCAR	Review prototype templates with OEM and selected team. It is the OEMs responsibility to setup the template review meeting with their team(s).
30 Days after final template review	Template manufacturer supplies one set of templates per organization that has placed an order.

8. **Part Changes that do not Require Official Wind Tunnel Tests**

The following parts do not require official wind tunnel testing but must be submitted at or prior to the October NASCAR Parts Approval Meeting to be considered for the following season:

1. Seam placement changes within defined bands

Note, that the deadline for submitting forms for the October meeting is typically 21 days prior to the meeting. Refer to the NASCAR Rule Book for the specific dates and submission requirements.

9. **Competition Body Component Requirements**

9.1 **Material**

All OEM body components must be composite body.

9.2 **Body Seams Requirements:**

1. The hood side and back seams must match CAD file B-001-00231A-14.STEP. The hood side curve must end at the hardpoint as indicated in Drawing B-001-00232D-14. NASCAR has final approval of body seam/flange fit CAD.

The OEM must provide a CAD file to NASCAR with curves representing the following body seams:

1. Front bumper cover
2. Hood
3. Quarter windows
4. Rear window
5. Rear bumper cover

9.3 **Part Numbers**

All OEM supplied body panels must have molded in or laser etched part numbers. Composite parts must have OEM part number molded into outer surface of part, on driver's side of vehicle. Laser etched part number must remain unpainted. All window glass must have a Supplier logo and OEM part number etched in parts.

9.4 **Parts Availability**

All OEM body parts must be made available for purchase by competing OEMs within a reasonable timeframe as decided by NASCAR.

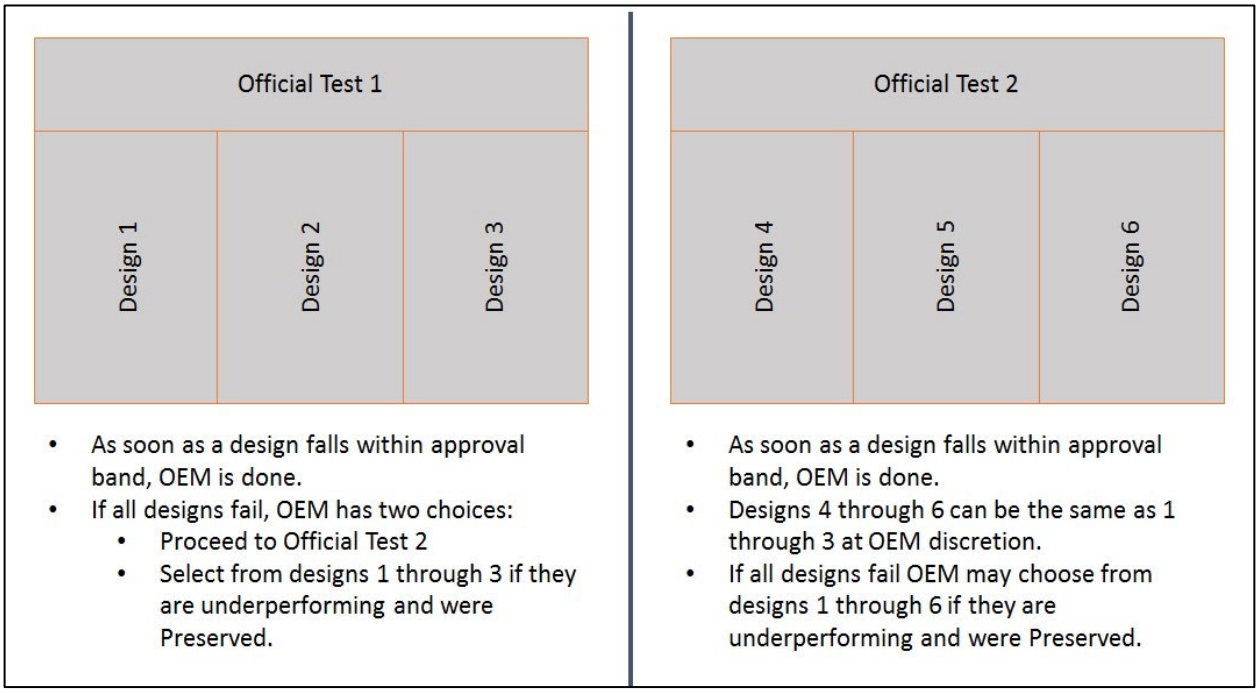
10. **Final Approval**

After all requirements are met, the design and data will be presented to the NASCAR Parts Approval Committee by NASCAR personnel during the October NASCAR Parts Approval meeting or at an earlier NASCAR Parts Approval meeting. Final approval will be communicated from the NASCAR Parts Approval Committee.

11. **Frequently Asked Questions and Additional Clarifying Information**

1. May an OEM resubmit a design that fell outside of the Approval Band within the same official wind tunnel test? No, but a design submitted in test 1, may also be submitted at the test 2.
2. If an OEM resubmits a design at the test 2, to what is the surface scan compared? The submitted CAD file. The +/-0.125-inch tolerance is still applicable.
3. Referring to Figure 3, when must an OEM declare if a run is official or trial? The OEM must declare the purpose of the run once the OEM test parts are installed prior to the wind tunnel fan starting for either a warmup or trail run.
4. Does an official wind tunnel test conclude once an OEM's aerodynamic coefficients fall within the approval band? Yes.
5. Referring to Figure 3, if Run 1 is in the approval band, is the OEM required to continue to Run 2 and 3? Yes
6. May an OEM schedule an official wind tunnel test shift immediately following a private wind tunnel test shift with the NASCAR submission chassis? Yes, assuming NASCAR can accommodate the test.
7. May an OEM choose to cancel an official test after viewing the results of the private test? If the OEM cancels the official test, they forfeit the cancelled test. See section 5.1 of this document: If an OEM cancels an official wind tunnel test within 120 hours of the scheduled official wind tunnel test, the cancelled test counts as an attempt and the OEM forfeits the cancelled test.
8. May an OEM delay the start time of an official test? No, the OEM test must start at the announced time. The OEM must inform the wind tunnel personnel that NASCAR is the official customer and that the NASCAR test must start on time. An OEM may not extend a private test into the NASCAR official shift.
9. Will OEM trial run data be used to calculate official OEM coefficients? No. Since the warmup and scan have not been completed, the trial run is not valid.
10. When does the seven-hour countdown time duration start? When the target body is completely removed.
11. In what instances may the OEM proceed with official testing after the expiration of the countdown clock? (1) If an OEM design is completely installed, the OEM may proceed with testing that design. (2) If NASCAR has added additional time to the countdown clock due to issues out of the OEM's control.
12. May an OEM complete a trial run after the clock has expired? Yes, as long as the design has been installed prior to the expiration of the clock.
13. Does the scan count towards the model change time when determining whether a 15-minute warmup or 30 minute warmup is required? Yes, the time off is from when the last official data point was taken to the acceptance of the scan.

14. May an OEM choose to accept an underperforming body design from test 1 at the conclusion of test 2? Yes, as long as the entire body was Preserved from test 1 and held in NASCAR's possession. The OEM may not use a Preserved body during private tests.
15. During a test session, if an OEM Preserves a body, can they use parts of that body for other designs within the same test? Yes, as long as the Preserved parts are not altered and remain in NASCAR's possession or mounted on the submission chassis. An acceptable example would be removal of a non-preserved front bumper cover while Preserving the remaining portions of the body as long as the remaining portions remain unmodified. Unacceptable example: Deeming a front bumper cover Preserved, and then adding components to it such as bezels, puffs, or a rapid prototype feature.
16. The chart below explains the decisions an OEM has relative to the six potential designs they can submit for the 2 official wind tunnel tests.



17. What is the CAD design tolerance to dimensions specified in drawing B-001-00232D-14? No tolerance. Infinite precision is specified for CAD design dimensions. The Rule Book tolerances do not apply to this document. All quantities are assumed to have infinite precision.

18. Leading and Following Strategies example:

The Timeline Below Assumes an OEM Desires to Debut Their Racecar at Daytona in February 2017

Strategy	October 2015	January 2016	April 2016	July 2016	August 2016	January 2017	February 2017	July 2017
FOLLOWING STRATEGY - Racecar debut follows 2017 production car SORP	A	B	C	D	E		F	
LEADING STRATEGY – Racecar debut leads 2017 production car SORP		A	G		E	B	F	D

A	Display Production Car and Racecar Renderings/Photographs and Provide Body Panel Change Matrix and Race Vehicle Styling Feature List
B	Production Car Introduced and Unveiled
C	Display Full Scale Production Car and Racecar to NASCAR Side-by-Side and NASCAR to Provide NDA and Capture Photographs of Racecar
D	Production Car SORP Begins
E	NASCAR Wind Tunnel Test with all OEMs Present
F	Daytona Racecar Debut
G	Display Full Scale Production Car and Racecar to NASCAR Side-by-Side Or Display 1/8 Scale Production Car (~2 Feet Long) and Full Scale Racecar to NASCAR Side-by-Side and NASCAR to Provide NDA and Capture Photographs of Racecar

- For a **Following Strategy**, an OEM delivers renderings to NASCAR 9 months prior to production car SORP and displays full scale cars to NASCAR 3 months prior to production car SORP
- For a **Leading Strategy**, an OEM delivers renderings to NASCAR 18 months prior to production car SORP and displays full scale cars to NASCAR 15 months prior to production car SORP