

**ASSEMBLY PERFORMANCE, HARD MOLD-IN-COLOR
INTERIOR COMPONENTS****WSS-M15P4-H****1. SCOPE**

This specification defines the minimum durability and performance requirements of hard, mold-in-color interior trim panels, moldings, overhead and floor consoles, and hard instrument panels where various materials are combined to provide a trim assembly having decorative and/or functional features.

2. APPLICATION

This specification was originally released for plastic mold-in-color and non-visible interior trim items such as door panels, center and overhead consoles, quarter panels, A-, B-, C-, and D-pillar moldings, hard instrument panels, instrument panel components and garnish molding.

2.1 LIMITATIONS

Not applicable for painted or wrapped parts.

3. REQUIREMENTS**3.1 APPROVED SOURCES**

This specification is performance based and does not have approved sources.

3.2 CONDITIONING AND TEST CONDITIONS

All test values are based on material conditioned for not less than 24 h prior to testing in a controlled environment of 23 +/- 2 °C and 50 +/- 5% relative humidity. Testing of the material should occur in the conditioning environment or soon after removal.

3.3 PERFORMANCE CRITERIA

Excluded from this specification are the non-resin components within the following assembly performance specifications; soft instrument panels, interior soft trim and wrapped parts (WSS-M15P45-C/latest), package trays (WSS-M15P6-E/latest), steering wheels (WSS-M98P12-C1/latest), headliners (WSS-M15P27-G/latest), carpeted substrate (WSS-M8P16-B/latest), molded armrests and headrests (WSS-M15P20-B1/B2/latest), appliqués (WSS-M15P34-E/latest), visors (WSS-M98P3-C/latest), painted interior components (WSS-M2P188-B1/latest), chrome plated components (WSS-M1P83-E1/latest), interior elastomers (WSS-M9P8-C/latest), instrument clusters (WSS-M15P52-A) interior NVH components (WSS-M99P32-E1/latest) or whose performance is specified separately.

3.4 DV/PV TEST PLAN

PEC/FEC/PV testing must be conducted in compliance with program milestones unless otherwise specified by Ford Engineering. See Table 1 and 2 for DV/PV testing.

Testing for mold-in-color components is detailed in Table 1 unless specified otherwise by Ford Engineering. Testing for non-visible components is detailed in Table 2 unless otherwise specified by Ford Engineering. Testing must be done on parts unless part geometry does not allow. If that is the case, appropriate plaques with production grain and color can be used.

Date	Action	Revisions	Rev. 02
2018 03 09	Revised	Revised title of requirement 3.10.2	L. Schmalz, NA
2018 02 09	Revised	See Summary of Revisions	L. Schmalz, NA
2017 10 27	Released		L. Schmalz, NA



3.5 APPEARANCE

Color, gloss, grain, tactile effect shall match the approved Corporate Design master sample.

3.5.1 Gloss

As released by Engineering:

Gloss A:	20° Glossmeter	min 92
B:	60° Glossmeter	76-84
C:	60° Glossmeter	66-74
D:	60° Glossmeter	58-66
E:	60° Glossmeter	47-53
F:	60° Glossmeter	33-38
G:	60° Glossmeter	17-23
H:	60° Glossmeter	7-13
J:	60° Glossmeter	4-6
K:	60° Glossmeter	2-4
L:	60° Glossmeter	0.5-2.0
N:	60° Glossmeter	1.8-2.4
R:	60° Glossmeter	1.2-1.6

3.6 ENVIRONMENTAL TESTING

Vehicle Location	Examples of components	Short Term 3.6.1 Temperature (XX*)	Long Term 3.6.2 Time and Temperature
Horizontal or vertical parts AT OR ABOVE THE BELT-LINE	Pillars; upper quarter panels; hard instrument panels and window garnish moldings	100 +/-2 °C	7 days at 100 +/-2 °C
Horizontal or vertical parts BELOW THE BELT-LINE	lower quarter trim panels; overhead consoles and glove box doors	90 +/-2 °C	7 days at 90 +/-2 °C
	Floor consoles and door panels 90 °C preferred	90 +/-2 °C	7 days at 90 +/-2 °C or 14 days at 80 +/-2 °C
Non-Sun Loaded	Scuff plates and other non-sun loaded floor level parts	80 +/-2 °C	7 days at 80 +/-2 °C

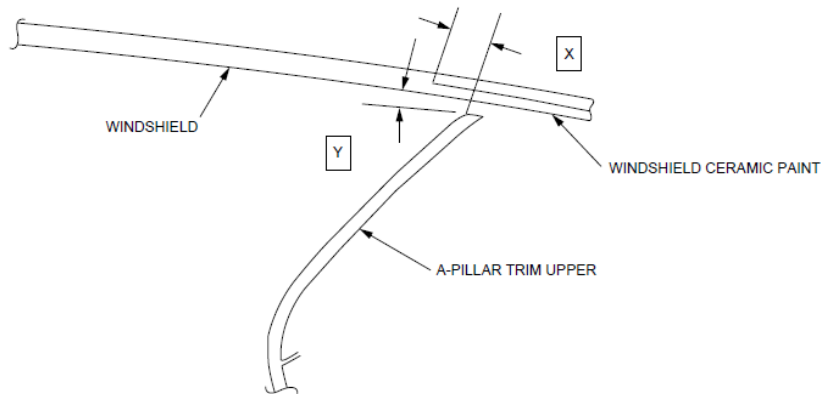
3.6.1 Short Term Environmental Cycling (FLTM BO 040-01 Procedure A, XX °C)

Rating 4 min

3.6.2 Long Term Environmental (FLTM BO 040-01 Procedure B, XX °C)

Rating 4 min

Note: For Upper A-Pillars: In addition to the measurement locations defined in FLTM BO 040-01, measurement locations should be every 5 centimeters starting at the upper zero location and running along the glass and the weather seal edges (See diagram below). Applies to paragraphs 3.6.1 and 3.6.2.



Upper A-Pillars:

- For 3.6.1 Short Term Heat, Humidity, and Cold cycle: Within the last 2 hours of the final cycle of high heat, photograph the parts with the same camera angle as on the pre-test photo.
- For 3.6.2 Long Term heat: Within the last 24 hours of high heat test, photograph the parts with the same camera angle as on the pre-test photo.

Subject the number of assemblies specified to each of the cycles per paragraphs 3.6.1 and 3.6.2.

Evaluation:

The trimmed assemblies shall remain relatively unaffected by the exposure cycles during and after the tests as demonstrated by:

- (1) Tactually/visually - no excessive tackiness, loss in surface-grain, or surface-color change (AATCC Procedure 1, Rating 4, min); no distortion, warping, blushing, hazing, milking, staining, waviness, or other objectionable visual appearance.
- (2) Functionally - no excessive expansion, shrinking, or warping that will interfere with normal functional operations.
- (3) Dimensionally - no movement exceeding 3.0 mm from the original installed position during or after the test; for the "significant characteristic locations", no movement exceeding 0.5 mm from the original installed position during or after the test. Dimensional exceptions to these requirements may be allowed on the Engineering drawing.

3.7 IMPACT RESISTANCE- ROOM TEMPERATURE (23 +/- 2 °C)

Required for scuff plates, floor consoles, load floors, seating components, door map pockets or any other parts as required by Ford Engineering.

Rubber Ball, 4.5 kg weight, 127 mm diameter, 60 +/- 5 Durometer "A"

Test Method: Conduct this test with the trim assembly mounted on an actual or simulated production support foundation using the approved retention methods. Drop the rubber ball from the height specified below at the impact locations indicated on the Engineering Drawing.



Scuff Plates	610 mm
Load Floor	500 mm
Below belt line	460 mm
Above the belt line	305 mm
Console	305 mm

The assembly shall show no evidence of cracking or breaking and shall fully recover from indentation.

3.8 RESISTANCE TO INTERIOR WEATHERING

(FLTM BO 116-01, AATCC Evaluation Procedure 1)

In Vehicle Sunlight Exposure Level	FLTM BO 116-01 Test Exposure	AATCC Rating After Exposure, min.
Severe Exposure: Instrument panel top, defroster grille,	3609.6 kJ/m ²	Rating 4
Heavy Exposure: Instrument panel lower top cover, 2 tone IP, IP bezel, IP registers, airbag, steering wheel, message center, appliques, parcel shelf assembly/package tray and center finish panel, door trim top rollover	2406.4 kJ/m ²	Rating 4
Medium Exposure: Instrument panel lower, door trim, interior trim, pillars/grab handles, garnish moldings, seat back plastics, head rest plastics, sunshade, sun visor, seat belt webbing & loops, exposed load floor trim, luggage cover, interior rear view mirror housing, interior tonneau, radio, radio bezel.	977.6 kJ/m ²	Rating 4
Mild Exposure: Floor console, side seat shields, and seat plastics below the belt line	601.6 kJ/m ²	Rating 4
Low Exposure: Lower floor panels, lower door trim panels, overhead console, headliner grab handles, moon roof, carpet and floor mats, seat track covers	225.6 kJ/m ²	Rating 4

The material should not exhibit staining, color tone change, change in hue, cracking, crazing, or other deterioration after exposure in accordance with the testing above. Read and report the gloss change.

3.8.1 Tackiness of Interior Materials after Weathering (FLTM BO 061-01)

Rating 4 min

3.9 SOILING AND CLEANABILITY

(FLTM BN 112-08, AATCC Evaluation Procedure 2)

Standard Soil	Rating 4 min
Grease	Rating 4 min
Coffee	Rating 4 min