



Standard Specification for Test Carpets and Pads for Vacuum Cleaner Testing¹

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1. Scope

1.1 This specification provides construction details and a replacement procedure for the standard carpet and pad to be used when testing vacuum cleaners.

1.2 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are for information only.

2. Referenced Documents

2.1 *ASTM Standards:*²

~~F555 Test Method for Motor Life Evaluation of an Upright Vacuum Cleaner~~

~~F608 Test Method for Evaluation of Carpet Embedded Dirt Removal Effectiveness of Household/Commercial Vacuum Cleaners~~
Test Method for Evaluation of Carpet Embedded Dirt Removal Effectiveness of Household/Commercial Vacuum Cleaners

~~F922 Test Method for Motor Life Evaluation of an Electric Motorized Nozzle~~

~~F1284 Test Method for Evaluating Carpet Embedded Dirt Removal Effectiveness of Residential Central Vacuum Cleaning Systems~~

~~F1334 Test Method for Determining A-Weighted Sound Power Level of Vacuum Cleaners~~

~~F1409 Test Method for Straight Line Movement of Vacuum Cleaners While Cleaning Carpets~~

~~F1411 Practice for Presenting Selected Information on Vacuum Cleaners for Consumer Use~~

~~F1601 Test Method for Motor Life Evaluation of an Electric Motorized Nozzle for Central Vacuum Cleaning Systems~~

~~F1692 Test Method for Life Evaluation of a Turbine-Powered Nozzle for Household Central Vacuum Cleaning Systems~~

~~F2609 Test Method for Litter-Cleaning Effectiveness of Vacuum Cleaners~~

~~F2756 Test Method for Determining Energy Consumption of Vacuum Cleaners~~

~~F2797 Test Method for Evaluating Edge Cleaning Effectiveness of Vacuum Cleaners~~

3. Basis of Selection

3.1 These standard carpets and pads are intended to provide a database and shall meet the following requirements:

3.1.1 Representative of carpets currently in popular use in the United States.

3.1.2 Reasonable anticipation of continued availability.

3.1.3 Compatible with other ASTM Committee F11 methods.

3.1.4 Provide a separation of cleaning effectiveness ratings between products with good reliability and repeatability.

4. Classification

4.1 The carpet types shall be classified according to accepted carpet industry practice, such as shag, multilevel, plush, etc.

5. Physical Requirements

5.1 ~~Carpets³—The following carpet types and construction have been found acceptable for use in vacuum cleaner testing. They shall be made in accordance with the physical requirements given herein:~~

~~5.1.1 Shag—Custom Tufted Test Carpet Construction:~~

Construction type

tufted

¹ This specification is under the jurisdiction of ASTM Committee F11 on Vacuum Cleaners and is the direct responsibility of Subcommittee F11.21 on Cleanability. Current edition approved ~~April~~ Nov. 1, 2006; 2011. Published ~~April~~ December 2011. Originally approved in 1980. Last previous edition approved in 2003; 2006 as F655 – 036. DOI: ~~10.1520/F0655-06~~ 10.1520/F0655-11.

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ The ~~sole~~ central source of supply of for the test carpets known to the committee at this time is ~~Textile Innovators Corporation, P.O. Box 8, Windsor, NC 27983; SDL Atlas, 3934 Airway Drive, Rock Hill, SC 29732~~. If you are aware of alternative suppliers, please provide this information to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend.

		Gage	1/8 in.
		Stitches	20/4 in.
		Pile height	1 1/4 in. (26.99 mm)
		Pile fiber	1710 denier type 6-6 Nylon, type 896AS yarn
		Yarn ply	2-ply tumbled autoclave heat set
		Face weight	70 oz/yd ² ± 6% variance in order to maintain the specified stitching and pile height
		Twist	6Z×6S
		Heat setting	autoclave “superba” setting with stuffer box
		Shift	no
		Finish	pure—no type of finish shall be applied to the yarn or carpet
Reference Only	[Backing material:	
		Primary	woven polypropylene
		Secondary	woven polypropylene
		Back coating	latex, 24 oz/yd ² (814 g/m ²)

5.1.2 Plush Custom Tufted Test Carpet Construction:

		Construction type	tufted
		Gage	3/16 in. (4.8 mm)
		Stitches	7.5/in. (2.95/cm)
		Pile height	3/8 in. (14.29 mm)
		Pile fiber	filament nylon denier 1184/70 7N66 twist 1.5Z×2.25S autoclave heat set
		Yarn ply	4 ply
		Face weight	38.9 oz/yd ² (1319 g/m ²) ± 6% variance in order to maintain the specified stitching and pile height
		Finish	pure—no type of finish shall be applied to the yarn or carpet
Reference Only	[Backing material:	
		Primary	polypropylene, 3 1/2 oz/yd ² (118.7 g/m ²)
		Secondary	jute, 7 oz/yd ² (237.3 g/m ²)
		Back coating	latex, 24 oz/yd ² (814 g/m ²)
		Finished weight	72 oz/yd ² (2442 g/m ²)

5.1.3 Multilevel Custom Tufted Test Carpet Construction:

		Construction type	tufted
		Gage	5/32 in. (3.97 mm)
		Stitches	6.5/in. (2.56/cm)
		Pile height	3/8 in. (14.29 mm)
		Pile fiber	filament nylon Allied Chemical Type 1225 denier, 0.75 turns per inch (37041)
		Yarn ply	2 ply
		Face weight	25.7 oz/yd ² (871 g/m ²) ± 6% variance in order to maintain the specified stitching and pile height
		Finish	pure—no type of finish shall be applied to the yarn or carpet
Reference Only	[Backing material:	
		Primary	polypropylene, 3 1/2 oz/yd ² (118.7 g/m ²)
		Secondary	jute, 7 oz/yd ² (237.3 g/m ²)
		Back coating	latex, 24 oz/yd ² (814 g/m ²)
		Finished weight	60.5 oz/yd ² (1715 g/m ²)

5.1.4 Level Loop Test Carpet Construction:

		Construction type	woven level loop woven through back
		Pitch	216
		Wires	8/in. (3.15/cm)
		Pile height	1/4 in. (6.35 mm)
		Pile fiber	wool
		Yarn ply	3 ply
		Face weight	43.9 oz/yd ² (1489 g/m ²)
		Finish	pure—no type of finish shall be applied to the yarn or carpet
Reference Only	[Backing material:	
		Back coating	synthetic and jute, 15.4 oz/yd ² (436.6 g/m ²)
		Finished weight	latex, 15.4 oz/yd ² (522.14 g/m ²) 73.3 oz/yd ² (2078 g/m ²)

5.2—The following carpet types and construction have been found acceptable for use in vacuum cleaner testing. They shall be made in accordance with the physical requirements given in Table 1, Table 2 and Table 3.

NOTE 1—A variance of ±7 % in face weight is allowable per HUD guidelines. When a new construction is needed, the proposed custom tufted test carpets should be subjected to construction verification as well as cleanability testing prior to acceptance for use.

TABLE 1 Custom Carpet Construction Specifications

	Plush	Multi-Level	Shag	Level Loop
<u>Construction</u>	<u>Tufted</u>	<u>Tufted</u>	<u>Tufted</u>	<u>Woven (through back)</u>
<u>Gauge/Pitch</u>	1/8 in., no shift	1/10 in., no shift	1/8 in., no shift	216
<u>Pile Height</u>	17/32 in. as tufted	0.416 in.	0.919	1/4 in. (6.35 mm)
<u>Stitches/Wires</u>	25 stitches/3 in.	12.4 stitches/inch	7.6 stitches/inch	8/in. (3.15/cm)
<u>Face Weight</u>	46 oz/yd ²	56.5 oz/yd ²	76.5 oz/yd ²	43.5 oz/yd ²
<u>Finish</u>	<u>Sheared</u>	<u>Sheared/Pure</u>	<u>Sheared</u>	<u>Pure</u>
<u>Backing</u>	15 pick or better woven polypropylene coated with latex and a synthetic secondary back			
<u>Yarn</u>	<u>Invista 1710 denier (Type 896AS) or equivalent</u>	<u>Invista 1288/2 solution dyed</u>	<u>Invista 1710 denier (Type 896AS) or equivalent</u>	
<u>Ply</u>	<u>2-Ply</u>	<u>2-Ply</u>	<u>2-Ply</u>	<u>3-Ply</u>
<u>Material</u>	<u>Nylon</u>	<u>Nylon</u>	<u>Nylon</u>	<u>Wool</u>
<u>Twist</u>	3.5 by 3.5	4.5 by 4.5	6.0 by 6.0	
<u>Heatset</u>	<u>Superba Straight Set</u>	<u>Superba Straight Set</u>	<u>Superba Stuffer Box</u>	
				F555
				F608
				F922
				F1284
				F1409
				F1411
				F1601
				F1692
				F2756
<u>ASTM Standards where used</u>	F608 F1284 F1409 F1411	F608 F1284 F1334 F1409 F1411	F608 F1284 F1409 F1411	

TABLE 2 Wilton Carpet Construction Specifications

<u>Pile Composition</u>	Wool 8,6/2*2
<u>Method of Manufacturing</u>	Wilton Fabric
<u>Color</u>	Dark, one color
<u>Backing</u>	Jute and Cotton + latex
<u>Type</u>	Cut-pile
<u>Total Height</u>	7.5 mm
<u>Pile Height</u>	6.4 mm
<u>Total Weight/m²</u>	2100 g/m ²
<u>Pile Weight/m²</u>	1500 g/m ²
<u>Number of Knots/m²</u>	96 000 knots/m ²
<u>Reed</u>	320 r/m
<u>Shots</u>	300 sh/m
<u>Standard width</u>	400 cm
<u>Tolerances</u>	±5 %

<https://standards.iteh.ai/catalog/standards/sist/4e2e2e1c-ec71-407a-8b46-41fa17d9a8e1/astm-f655-11>

TABLE 3 Extractor Carpet Construction Specification

<u>Style Name</u>	Atherton Plus
<u>Description</u>	Saxony Cut Pile
<u>Fiber Content</u>	100 % Continuous Filament Nylon
<u>Face Weight</u>	25 oz/yd ²
<u>Finished Pile Thickness</u>	0.53 in.
<u>Gauge</u>	5/32
<u>Tufts/in.</u>	8
<u>Primary Backing</u>	Polypropylene
<u>Secondary Backing</u>	Classicbac
<u>Total Weight</u>	56 oz/yd ²
<u>Density</u>	1698 oz/yd ²
<u>Twist</u>	3.4 Fiber
<u>Protection</u>	None

5.2 Padding⁴—Sponge rubber type of waffle construction with a reinforcing scrim.

5.2.1 Specification:

<u>Color</u>	rose
<u>Oz weight/yd²</u>	68 ± 3%
<u>Belt design</u>	Montego
<u>Roll size</u>	54 in. × 40 ft

⁴ The sole source of supply of the padding (CANNES 2209-68) with the construction described in 5.2 (Grandstand) is General Felt Industries, Co., 80 Park Plaza West-One, Saddlebrook, NJ 07662-5864. If you are aware of alternative suppliers, please provide this information to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend.