



TECHNICAL REPORT

Laboratory Tests for Cricket Synthetic Turf

Report Number: **LSIND-R19008-A1**

Project: **LSIND027 – Maverick Turf**

Date(s): **26/04/2019**

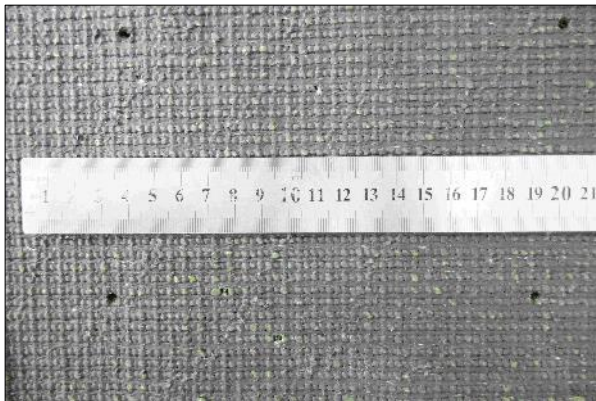
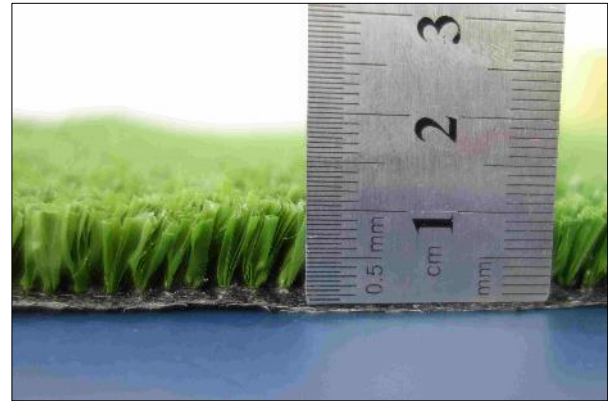
This report contains 8 pages in total.

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1. CLIENT DETAILS

Company: Maverick Turf SDN BHD
Address: AL 182A, Kampung Baru Sg Buloh,
 Selangor Darul Ehsan, Malaysia – 47000.

2. PRODUCT INFORMATION



LSIND-S-2019-008

Dimensions: 1 sample of 3.0 m x 1.0 m

Pile Height	9 ± 1 mm
Performance Infill – SBR Rubber	No infill
Stabilising Infill – Sand	No infill

3. TESTS PROGRAM

Tests methods and technical requirements criteria considered in this report refer to the below standards:

- **Product Identification**
 - **Mass per unit area** ISO 8543
 - **Pile length above backing** ISO 2549
 - **Pile weight** ISO 8543
 - **Pile yarn dtex** FIFA TM 23
 - **Tufts per unit area and gauge** ISO 1763
 - **Thickness of the yarn** FIFA TM 25
 - **Tuft withdrawal force** ISO 4919
 - **Water permeability** EN 12616:2003
- **Vertical Ball Behaviour** Internal Method
- **Pace and Bounce** Internal Method

All the results reported here reflect the performance of the sample(s) received only.

Tests are realized in laboratory where temperature and air humidity are controlled:

- Temperature: 23.2°C
- Air Humidity: 55 %
- Surface: Dry

Samples were tested in accordance with the manufacturer's instructions as reported below:

- Product sample has been laid on concrete.

4. TESTS RESULTS

a) Product Identification of the Carpet

i) Mass per unit area

LSIND-S-2019-008	Result
Mass per unit area	2,322 g/m ²

ii) Pile length above backing

LSIND-S-2019-008	Result
Pile length above backing	9.4 mm

iii) Pile weight

LSIND-S-2019-008	Result
Pile weight	1,207 g/m ²

iv) Pile yarn dtex

LSIND-S-2019-008	Result
Pile yarn dtex	7,408 dtex

v) Yarn thickness

LSIND-S-2019-008	Result
Yarn thickness	85 µm

vi) Tufts per unit area and gauge

LSIND-S-2019-008	Result
Tufts per unit area	67,870 /m ²
Stitch gauge	3/16 inch

vii) Tuft withdrawal force

LSIND-S-2019-008	Result
Tuft withdrawal force	17.4 N

viii) Water permeability

LSIND-S-2019-008	Result
Water permeability	1,698 mm/h

b) Vertical Ball Behaviour

An SG official cricket ball is released from 3m, the time between the first and second impacts is recorded in seconds and the height of the rebound from the surface calculated, expressed in % of the dropping height.

LSIND-S-2019-008	Result
Vertical Ball Behaviour	21.3 %

c) Pace and Bounce

A canon delivers a SG official cricket ball that arrives at the sample at 3 different speeds – 29 / 36 / 39 m/s – (± 2 m/s) and an angle of 12.5° ($\pm 0.5^\circ$) horizontal to the surface. The speeds and angles are measured using a proprietary imaging apparatus and software.

i) Pace

Pace is the quotient of absolute speed: $\frac{speed_{out}}{speed_{in}}$

$angle_{in} / speed_{in}$	29 m/s	36 m/s	39 m/s
12.5°	84.8 %	84.6 %	88.5 %

For balls bowled at 36 m/s and 12.5° , the surface is expected to retain 84.6 % of the impact speed of the ball after impact.

ii) Bounce

Bounce is the quotient of angles: $\frac{angle_{out}}{angle_{in}}$

$angle_{in} / speed_{in}$	29 m/s	36 m/s	39 m/s
12.5°	76.1 %	67.2 %	64.8 %

For balls bowled at 36 m/s and 12.5°, the surface is expected to retain 67.2 % of the impact angle of the ball after impact.

NEW DELHI, 26/04/2019

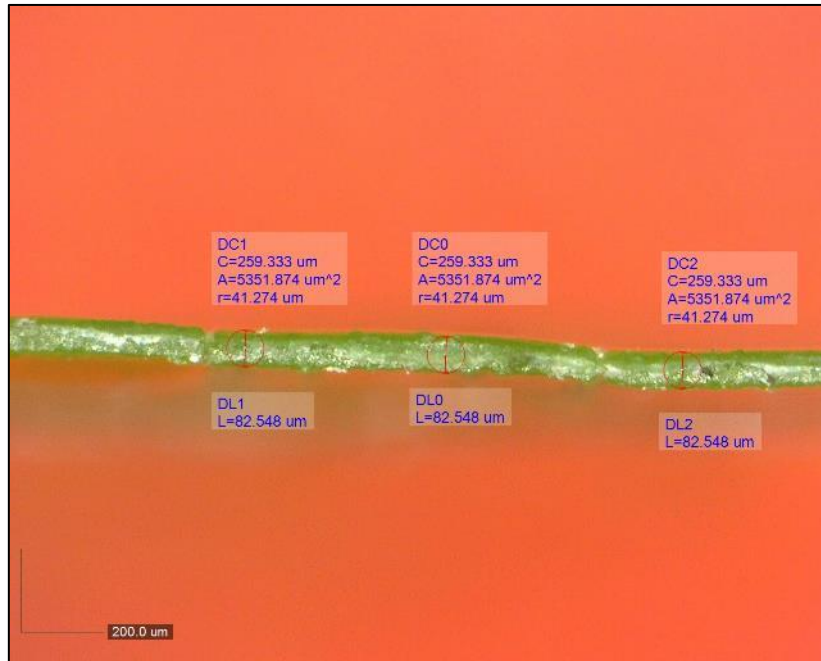
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APPENDIX A – Yarn Dimensions

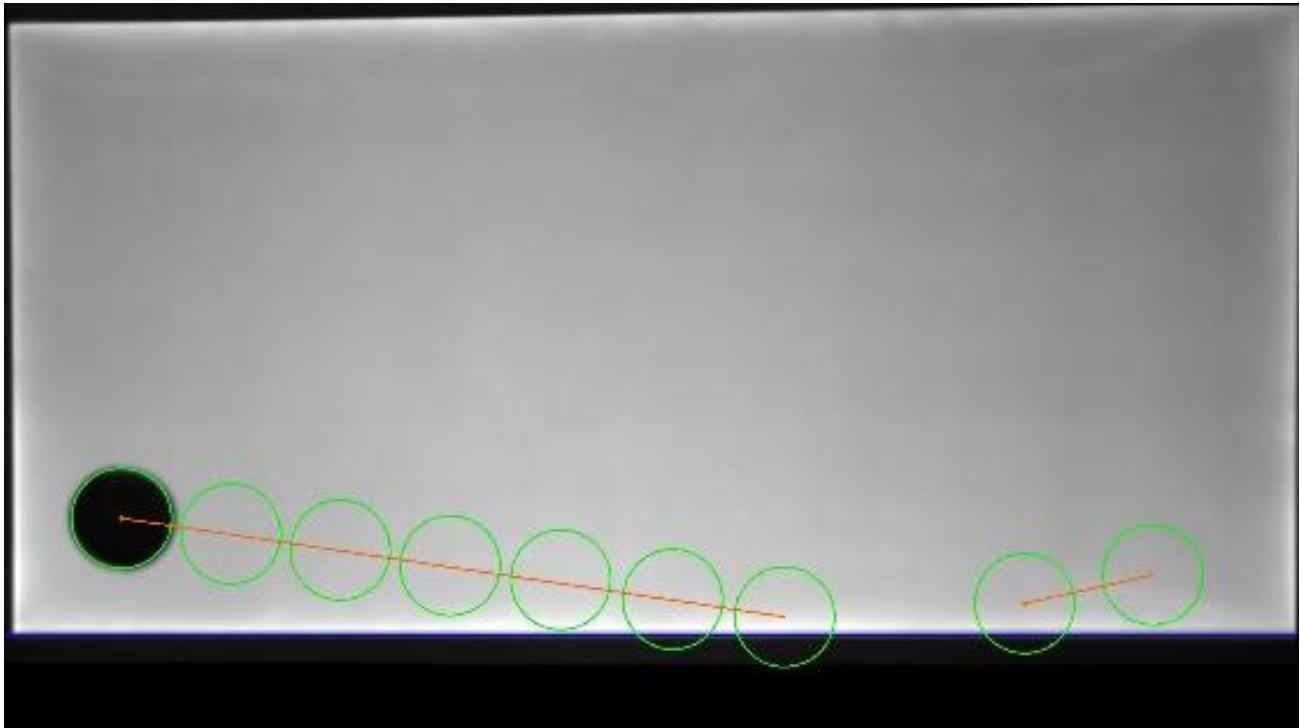


Cross Sectional View: Yarn Dimensions



Multiview: Yarn Dimensions

APPENDIX B – Pace and Bounce



Speed out :	29.81 m/s	COR : 0.540	Speed in :	35.46 m/s
Mean speed out :	29.98 m/s	COF : 0.415	Mean speed in :	35.46 m/s
Angle out :	-8.41 deg	CPR : 98.995	Angle in :	12.51 deg
Pace :	0.846	T°C : 23	Bounce :	0.672

Pace and Bounce testing, screen capture at 36m/s and 12.5°