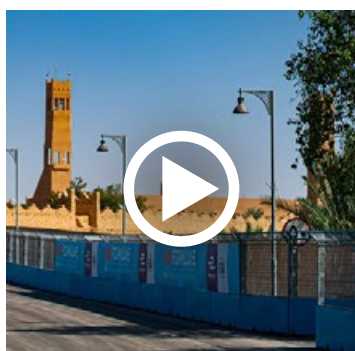


# RACEGUIDE

## 2021 MICHELIN FORMULA E



**FEBRUARY  
26-27**  
**ROUNDS  
1 AND 2**  
2021 FIA ABB  
FORMULA E WORLD  
CHAMPIONSHIP  
**DIRIYAH  
SAUDI ARABIA**

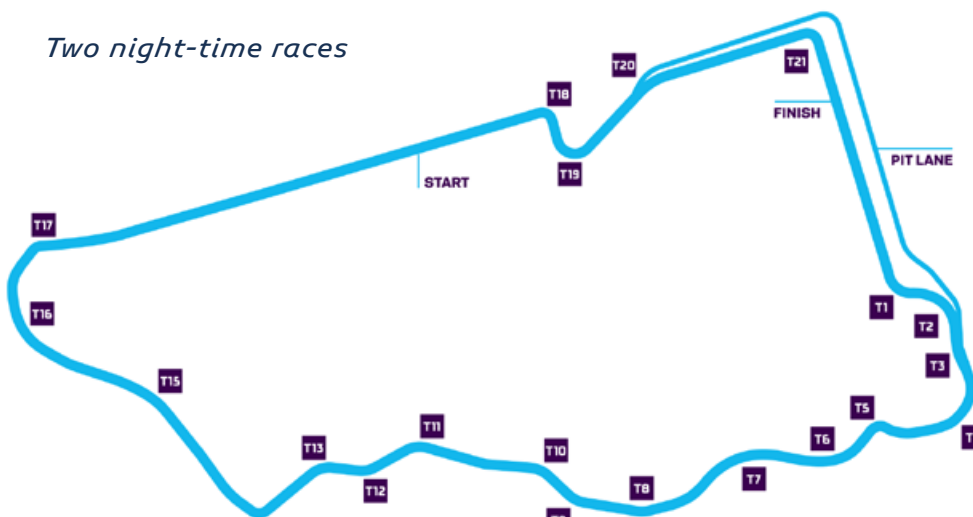


**CHECK OUT  
DIRIYAH E-PRIX TEASER**

## DIRIYAH E-PRIX

**3<sup>RD</sup> RUNNING**

Two night-time races



**2.495KM**

**21  
TURNS**  
(LEFT: 9 / RIGHT: 12)

**CLOCKWISE**

**GRIP** Good mechanical grip is essential here in order to offset the lack of surface grip due to the layer of sand and dust that gets deposited on the track. Tyres clean the racing line as the day progresses but the drivers need to be able to count on the qualities of their MICHELIN Pilot Sport EVs when overtaking.

### TIMETABLE

	ROUND 1	ROUND 2
	<b>FEBRUARY 25</b>	
Shakedown	3:30pm-3:45pm	
Free Practice 1	6:15pm-7:00pm	
	<b>FEBRUARY 26</b>	<b>FEBRUARY 27</b>
Free Practice 2	2:00pm-2:30pm	1:45pm-2:30pm
Qualifying Groups 1 to 4	4:00pm-4:28pm	4:00pm-4:28pm
Super Pole (Top 6)	4:37pm-4:57pm	4:37pm-4:57pm
E-Prix (45' + 1 lap)	8:03pm	8:03pm
Podium ceremony	9:00pm	9:00pm

Local time GMT +3

### THE 2019 E-PRIX



**WINNERS**

**RACE 1**  
**Sam Bird**  
(Envision Virgin Racing), 34 laps

**RACE 2**  
**Alexander Sims**  
(BMW I Andretti Motorsport), 30 laps

**POLE-POSITION RACES 1 & 2**  
**Alexander Sims**  
(BMW I Andretti Motorsport)

The MICHELIN Pilot Sport provided outstanding grip despite the track's sandy top-coating



## RENEWABLE ENERGY AND SUSTAINABLE MATERIALS IN SAUDI ARABIA

Saudi Arabia's Vision 2030 plan seeks to expand the country's use of sustainable materials

A 400MW windfarm with 99 individual turbines is under construction in Dumat al-Jandal

As part of the Green Riyadh project, 7.5 million trees are to be planted in 48 parks by 2030

Only two other G20 countries have curbed their CO<sub>2</sub> emissions more than Saudi Arabia since 2018

Saudi Arabia has invested \$1 billion in the electric car brand Lucid Motors

Crown Prince Mohammed Ben Salman recently presented 'The Line', a futuristic eco-city

During the 2021 Dakar Rally's stopover in Neom, the event's organisers revealed their DakarFuture plan which paves the way for the participation of ultra-low-emissions vehicles

## DIRIYAH AND SAUDI ARABIA

Diriyah sits on the outskirts of Saudi Arabia's capital Riyadh (population: 5.7 million)

Diriyah was the kingdom's capital in the 18<sup>th</sup> Century

The At-Turaif district has been a UNESCO world heritage site since 2010

Saudi Arabia is the biggest Middle-East country

## MICHELIN STATISTIC



Michelin was one of Formula E's original founding partners when the first championship was organised in 2014/2015. The first clash of Season 7 will see it chalk up its 70<sup>th</sup> e-prix win.



**JÉRÔME MONDAIN,**  
Formula E Manager  
Michelin Motorsport

The main feature of this circuit is the low grip levels it provides

The main feature of this circuit is the low grip levels it provides, especially early on when the cars get to lap for the first time. The track has been resurfaced recently, so we are likely to see the phenomenon of seeping oil. That's normal for fresh asphalt but it means there will probably be even less grip than usual. Having said that, the conditions tend

to evolve tremendously between the first sessions and the race, causing lap times to tumble. Indeed, Diriyah is probably the venue where times come down the most in the course of the event. Both races take place after sunset, with the track lit by LED floodlights powered entirely by renewable energy – a first in Formula E."

## THE DIRIYAH E-PRIX AND THE MICHELIN PILOT SPORT EV

### MICHELIN PILOT SPORT EV



Developed specifically for the FIA Formula E Championship

The first 18-inch single-seater racing tyre

The first single-seater racing tyre capable of competing in dry and wet conditions

The first tyre capable of lasting an entire race meeting

Size (front/rear)	Front: 245/40 R 18 / Rear: 305/40 R 18
Width (front/rear)	245mm / 305mm
Tread width (front/rear)	240mm / 270mm
Side wall height (front/rear)	98mm / 122mm (i.e. 40 percent of tread width)
Rim diameter	18 inches
Weight (front/rear)	Front: 8kg / Rear: 10kg
Type of tread pattern	Asymmetric, non-directional
Usage	Circuits, street circuits, asphalt, concrete, wet or dry weather
Number of tyres taken for this race	192 (24 cars x 8 tyres)
Weight saving per set of four tyres	9kg for 4 tyres (season 6 vs season 1)
Embedded Michelin tyre monitoring sensors (TMS)	Automatic transmission of encrypted tyre pressure data



# MICHELIN PILOT SPORT EV

**MICHELIN  
PILOT  
SPORT EV**  
THE WINNING  
TYRE  
RANGE

## THE REVOLUTIONARY MICHELIN PILOT SPORT EV: LIGHTER AND MORE ENERGY- EFFICIENT THAN EVER

### A REVOLUTIONARY RACING TYRE, IN MORE WAYS THAN ONE!

Developed specifically for the world's first all-electric single-seater motor racing championship, the new MICHELIN Pilot Sport EV is an exceptionally versatile tyre that was designed by Michelin Motorsport's engineers to cover the entire race day (free practice, qualifying, race), whatever the weather, as required by the technical regulations that govern the series.

**Another exceptional characteristic of the tyre is its size.** The MICHELIN Pilot Sport EV was effectively the first ever single-seater tyre to feature an interior diameter of 18 inches, a disruptive concept put forward by Michelin Motorsport and approved by the FIA (Fédération Internationale Automobile). The fact that 18-inch wheels

have become a common feature of road cars enables Michelin Motorsport's engineers and chemists **to carry over the lessons they learn on the racetrack to everyday tyres, in keeping with the firm's 'track to street' policy.**

The MICHELIN Pilot Sport EV (front: 245/40 R 18 / rear: 305/40 R 18) is tall and narrow in the interests of energy efficiency, which equates to longer range. Its low sidewalls also flex less, resulting in the generation of less heat, which **in turn means reduced energy consumption**, a valuable benefit for Formula E's latest-generation 'Gen2' Spark SRT 05Es.

**The MICHELIN Pilot Sport EV is a connected tyre**, too, thanks to an embedded RFID chip which facilitates tracking, from production through to recycling.

### FORMULA E: A HI-TECH LAB FOR MICHELIN

As part of its **VISION plan**, Michelin is targeting the production of tyres that incorporate recycled, regenerated and bio-sourced materials by 2050. The extreme conditions encountered in Formula E enable Michelin to incubate new ideas and accelerate the introduction of sustainable materials. The proportion of sustainable materials employed for the textiles that go into the MICHELIN Pilot Sport EV Formula E tyre is notably high.

### THE MICHELIN PILOT SPORT EV: THE HEIR

As a founding partner of Formula E, Michelin pioneered a fresh approach to world class motor racing with the development of a single, treaded 18-inch Pilot Sport for the series. This exceptionally versatile tyre is capable of performing in wet and dry conditions alike and has evolved over successive seasons to match the constantly-improving performance of the electric single-seaters that star in the championship. Michelin's current Formula E challenger is 20 percent lighter than the original, but at the same time it is appreciably more efficient, in line with the increasingly higher power output of the cars' power units which today deliver 250kW (335hp). The third-generation Pilot Sport EV for Formula E benefits from the experience Michelin has gained over six



seasons and at some 70 e-prix across the world. A number of the race-proven technologies it packs have been carried over to the MICHELIN Pilot Sport EV for road-going electric sports cars. The latter also benefits from a hard rubber compound for the central part of the tread for optimal grip, plus a more efficient compound for the shoulders to reduce energy consumption, not to mention MaxTouch Construction™ technology which maximises the size of the contact patch to optimise acceleration, braking and cornering performance. Available in a choice of 16 sizes for 18- to 22-inch rims, the MICHELIN Pilot Sport EV delivers outstanding grip in wet and dry weather and, in addition to its durability, extends the range of high-performance electric cars by up to 60 kilometres.

PILOT SPORT EV  
FIA FORMULA E



For track use

PILOT SPORT EV



For road use

(high-performance electric vehicles)

PILOT SPORT 4S



For track use

PILOT SPORT 4 SUV



For road and occasional track use

PILOT SPORT 4 SUV



For road use

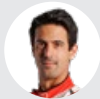


# ENTRY LIST

## DIRIYAH E-PRIX

### AUDI SPORT ABT SCHAEFFLER FORMULA E TEAM

AUDI E-TRON FE07



#### N°11 Lucas DI GRASSI (BRA)

Races: 69  
Victories: 10  
Pole positions: 3

Fasted race laps: 7  
Podiums: 32



CHAMPION  
2016/2017



#### N°33 René RAST (DEU)

Races: 6  
Victory: 0  
Pole position: 0

Fasted race lap: 0  
Podium: 1



### ENVISION VIRGIN RACING

AUDI E-TRON FE07



#### N°37 Nick CASSIDY (NZL)

Race: 0  
Victory: 0  
Pole position: 0

Fasted race lap: 0  
Podiums: 0

ROOKIE



#### N°04 Robin FRIJNS (NED)

Races: 45  
Victories: 2  
Pole position: 0

Fasted race lap: 0  
Podiums: 7



### BMW I ANDRETTI MOTORSPORT

MW IFE.21



#### N°27 Jake DENNIS (GBR)

Race: 0  
Victory: 0  
Pole positions 0

Fasted race lap: 0  
Podium: 0

ROOKIE



#### N°28 Max GÜNTHER (DEU)

Races: 21  
Victories: 2  
Pole position: 0

Fasted race lap: 0  
Podiums: 3



### DRAGON / PENSKE AUTOSPORT

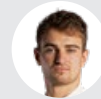
PENSKE EV-4



#### N°07 Segio SETTE CAMARA (BRA)

Races: 6  
Victory: 0  
Pole position: 0

Fasted race lap: 0  
Podium: 0



#### N°06 Nico MULLER (CHE)

Races: 10  
Victory: 0  
Pole position: 0

Fasted race lap: 1  
Podium: 0



### DS TECHEETAH

DS E-TENSE FE20



#### N°25 Jean-Eric VERGNE (FRA)

Races: 67  
Victories: 9  
Pole positions: 11

Fasted race laps: 4  
Podiums: 23



CHAMPION  
2017/2018  
and 2018/2019



#### N°13 Antonio Felix DA COSTA (PRT)

Races: 65  
Victories: 5  
Pole positions: 4

Fasted race laps: 3  
Podiums: 11



CHAMPION  
2019/2020



### MAHINDRA RACING

MAHINDRA M7ELECTRO



#### N°29 Alexander SIMS (GBR)

Races: 24  
Victory: 1  
Pole positions: 3

Fasted race laps: 1  
Podiums: 2



#### N°94 Alex LYNN (GBR)

Races: 27  
Victory: 0  
Pole position: 1

Fasted race lap: 0  
Podium: 0



# ENTRY LIST

## DIRIYAH E-PRIX

### MERCEDES-BENZ EQ FORMULA E TEAM

#### MERCEDES-BENZ EQ SILVER ARROW 02



#### N°5 Stoffel VANDOORNE (BEL)

Races: 24  
Victory: 1  
Pole positions: 2

Fasted race lap: 1  
Podiums: 4



#### N°17 Nyck DE VRIES (NED)

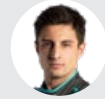
Races: 11  
Victory: 0  
Pole position: 0

Fasted race lap: 0  
Podium: 1



### JAGUAR RACING

#### JAGUAR I-TYPE V



#### N°20 Mitch EVANS (NZL)

Races: 48  
Victories: 2  
Pole positions: 2

Fasted race laps: 2  
Podiums: 6



#### N°10 Sam BIRD (GBR)

Races: 69  
Victories: 9  
Pole positions: 5

Fasted race laps: 6  
Podiums: 19



### NIO 333 FE TEAM

#### NIO 333 001



#### N°8 Oliver TURVEY (GBR)

Races: 58  
Victory: 0  
Pole position: 1

Fasted race lap: 0  
Podium: 1



#### N°88 Tom Blomqvist (GBR)

Races: 8  
Victory: 0  
Pole position: 0

Fasted race lap: 0  
Podium: 0



### TAG HEUER PORSCHE FORMULA E TEAM

#### PORSCHE 99X ELECTRIC



#### N°36 André LOTTERER (DEU)

Races: 36  
Victory: 0  
Pole positions 2

Fasted race laps: 3  
Podiums: 6



#### N°99 Pascal WEHRLEIN (DEU)

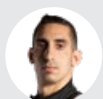
Races: 17  
Victory: 0  
Pole position: 1

Fasted race laps: 3  
Podium: 1



### NISSAN E.DAMS

#### NISSAN IMO2



#### N°23 Sébastien BUEMI (CHE)

Races: 67  
Victories: 13  
Pole positions 14

Fasted race laps: 7  
Podiums: 29



#### N°22 Oliver ROWLAND (GBR)

Races: 25  
Victory: 1  
Pole positions 4

Fasted race lap: 1  
Podiums: 3



### ROKIT VENTURI RACING

#### Mercedes-Benz EQ SILVER ARROW 02



#### N°48 Edoardo MORTARA (CHE)

Races: 33  
Victory: 1  
Pole position: 0

Fasted race lap: 0  
Podiums: 3



#### N°71 Norman NATO (FRA)

Race: 0  
Victory: 0  
Pole position: 0

Fasted race lap: 0  
Podium: 0



# REGULATIONS

## 2021 ABB FIA FORMULA E WORLD CHAMPIONSHIP

### CARS (SINGLE-SEATERS)

- Spark STR-05e / chassis: Dallara / battery: McLaren Applied Technologies
- **Maximum length:** 5,200mm
- **Maximum width:** 1,800mm
- **Maximum height:** 1,250mm
- **Minimum weight:** 900kg, including driver and battery and/or capacitor (maximum: 280kg)
- Maximum power, electric powertrain: 250kW (335hp) for free practice and qualifying, 200kW (270hp) during races.
- Gearbox: six speeds maximum
- Only 1 MGU may be used
- Allocation per race number: 2 electric motors, 2 gearboxes, 2 inverters and 1 battery pack for the season



### TYRES

- A single type of tyre (pattern and construction)
- No mid-race tyre changes
- Allocation of 1.5 sets (3 front + 3 rear) of new tyres per driver for single race and 2 sets (4 front + 4 rear) per driver for double headers.
- All tyres are returned to Michelin after every event
- In the case of a puncture during a practice session, the use of a marked tyre is authorised (identified by FIA)
- Can be inflated using air only
- Minimum tyre pressures are checked before qualifying and before races
- In the case of a 'Wet Track', tyre pressures may be adjusted in parc ferme
- Tyres must remain visible in the team garages at all times
- Tyres are identified by RFID chips
- Tyre warmers not authorised

### EVENT FORMATS

- A **Shakedown** session of a maximum duration of 15 minutes + three laps may be organised the day before the race. Power is restricted to 110kW. A maximum of six laps per car.
- **Practice:** Two practice sessions (45 and 30 minutes) in the course of the morning of Race Day. Maximum power: 250kW.
- **Qualifying:** The drivers are divided into four groups of six cars as a function of their championship positions (or of the previous championship order in the case of the season's first race). Each driver has up to two flying laps (only one running at maximum power) to post a qualifying time. The six fastest drivers go on to take part in the Super Pole shootout. Maximum power: 250kW.
- **Super Pole:** Start order is based on the times posted in qualifying, with the 'slowest driver' to lap first, etc. One flying lap only.
- **Grid:** The six places at the front of the grid are reserved for the drivers who take part in the Super Pole session.
- **Race:** Standing start. Maximum duration: 45 minutes + 1 lap. Use of two power outputs mandatory: Normal Mode (200kW / regeneration: 250kW) and Attack Mode (235kW / regeneration: 250kW).
- **Attack Mode:** Power: 235kW (compared with 225kW in 2018/2019). The number and duration of Attack Mode activations is specific to each race and are notified at least one hour before the start. The cockpit halo lights up when a car is in Attack Mode.
- **FanBoost:** A temporary 100kJ power boost (minimum: 240kW/maximum: 250kW) for five drivers chosen by a fan vote. To be activated once, but not before the 22nd minute of the race.

### POINTS-SCORING SYSTEM

**Race result:** 1<sup>st</sup>, 25 points • 2<sup>nd</sup>, 18 points  
3<sup>rd</sup>, 15 points • 4<sup>th</sup>, 12 points • 5<sup>th</sup>, 10 points  
6<sup>th</sup>, 8 points • 7<sup>th</sup>, 6 points • 8<sup>th</sup>, 4 points  
9<sup>th</sup>, 2 points • 10<sup>th</sup>, 1 point.

**Pole Position:** 3 points.

**Fastest drivers in the qualifying groups:**  
1 point

**Fastest race lap:** 1 point  
(if driver classified inside the top 10).

