Of accelerating, braking and respect for speed

The Kilomètre Lancé at Engadin Airport is all about the speed achieved over the distance traveled. This speed must also be reduced again if one does not want to end up in the Inn, which flows past the other end of the runway.

The technical data of the runway are:

Total length: max 1,830 m
Width: 40 m

Calculation braking distance:
For a normal braking distance the rule of thumb is: (km/h:10) x (km/h :10), so for example.
300 km/h = 900 m
250 km/h = 625 m
200 km/h = 400 m

In the case of emergency braking, the braking distance is reduced by just under half. However, only very (!) experienced drivers achieve a really maximally effective emergency braking.

The braking distance increases as the square of the speed driven and is four times as long at 200 km/h as at 100 km/h and even nine times as long at 300 km/h! In addition: Caution at high speeds because of decreasing braking effect with hot brakes, especially with comparatively heavy vehicles!

What does this mean with the available dimensions at Engadin Airport?
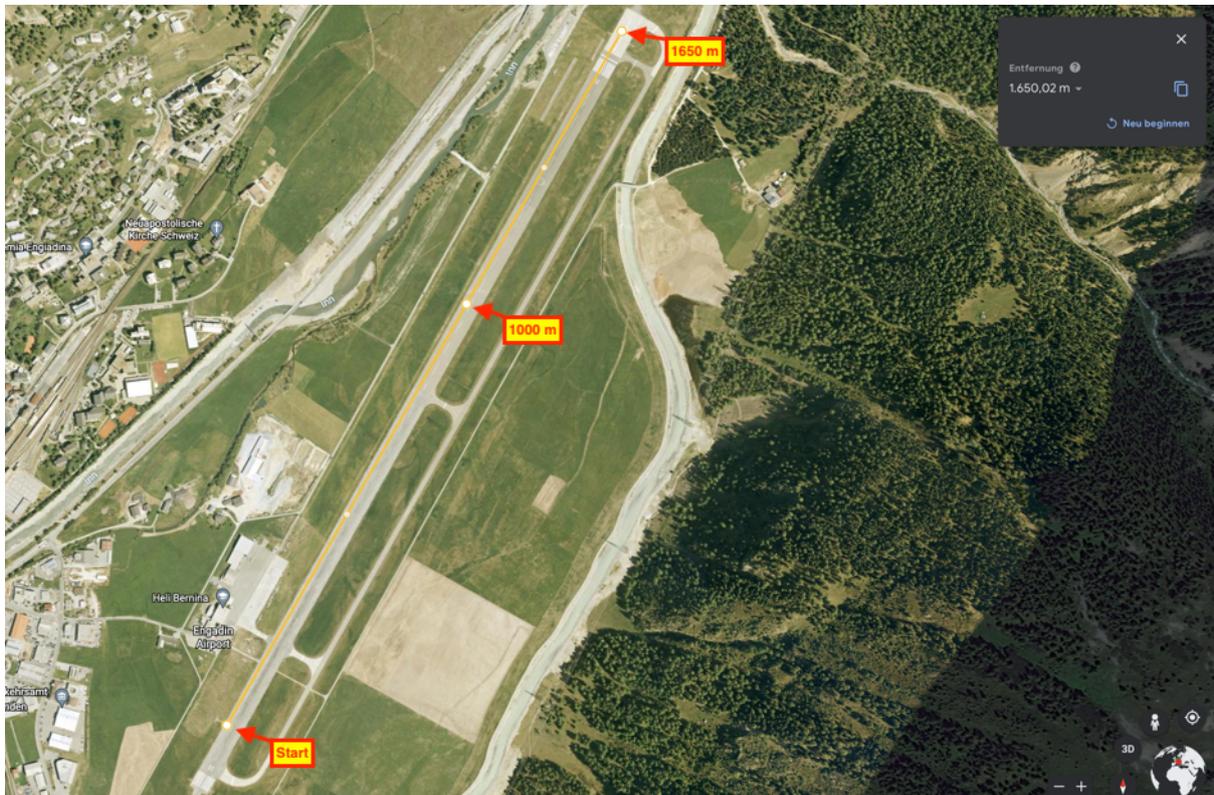
Short distances of 1/8 and ¼ mile (approx. 200 and approx. 400 m, respectively) are no problem. The speeds that can be achieved can be reduced without any problems. With modern Top Fuel dragsters, however, it would look different: In 2019, Brittany Force set a new record in Las Vegas by reaching a top speed of 544 km/h in her 10,000 hp dragster at 1000 feet (305 m) in just 3.65 seconds (!). The classic 1/4 mile (402 m) is no longer run at all in the Top Fuel class in the USA for this reason (too dangerous.

With a standing start and 250 km/h at the finish at 1,000 m, the normal braking distance is approx. 625 m. The available braking distance is about 650 m!

To be able to classify this correctly, two examples from the past:

Bugatti 16 cyl. (1930, Louis Chiron, day winner kilometer race, flying start)
18.7 seconds, average speed 192.513 km/h

Ferrari F40 (1987):
1000m with standing start: 21 seconds = average speed approx 172 km/h, final speed approx 250 km/h.

Bugatti EB110SS (1993)
Record drive 1000 m: 19.61 seconds, final speed 276.5 km/h

For motorcycles, the calculation is somewhat different:
The braking distance of a modern motorcycle from 300 km/h is at least 410 m (very skilled rider). An averagely skilled driver achieves a braking deceleration of 6 m/second and already needs 640 m for the same full braking.
Even at 200 km/h, the braking distances are still approx. 200 m or 300 m for the average experienced driver.

And don't forget: The remaining length of the runway is very difficult to estimate from the driver's perspective.