BEA
Bureau d'Enquêtes et d'Analyses
pour la sécurité de l'aviation civile

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SAFETY INVESTIGATION REPORT

# Incident

between the EMBRAER ERJ190 registered **F-HBLJ**
and the ATEC 321 identified **84OM**
on Wednesday 5 June 2024
at Marseille – Provence airport

| | |
|---|---|
| **Time** | Around 07:27[1] |
| **Operators** | - F-HBLJ: HOP!<br>- 84OM (call sign F-JKSF): private |
| **Type of flights** | - F- HBLJ: passenger commercial air transport<br>- 84OM: cross-country |
| **Persons on board** | - F-HBLJ: captain, co-pilot, cabin crew and passengers<br>- 84OM: pilot and one passenger |
| **Consequences and damage** | None |
| This is a courtesy translation by the BEA of the Final Report on the Safety Investigation. As accurate as the translation may be, the original text in French is the work of reference.<br>*This translation corresponds to the modified report of December 2025*. | |

# Airprox between a passenger commercial air transport aeroplane carrying out a go-around and a microlight in cruise

## 1 HISTORY OF THE FLIGHT

*Note: the following information is principally based on statements, the ERJ190's QAR, the microlight's Garmin G3X computer and radio-communication recordings.*

The crew of the Embraer ERJ190 were carrying out flight AFR65YU between Lyon – Saint-Exupéry and Marseille – Provence airports. They were cleared for the RNP 31R approach. The captain was the PF[2] and the co-pilot, the PM.

The pilot of 84OM was carrying out a circular cross-country flight from Aix-les-Milles aerodrome with a passenger. He had planned to fly to reporting point S of the Provence CTR and then continue along the coast to the Calanques situated to the east of Marseille before returning to Aix-les-Milles. At the time of the incident flight, Aix-les-Milles aerodrome was operating with the A/A frequency.

[1] The times in this report are in Coordinated Universal Time (UTC). Two hours should be added to obtain the legal time applicable in Metropolitan France on the day of the event.
[2] The glossary of abbreviations and acronyms frequently used by the BEA can be found on its web site.

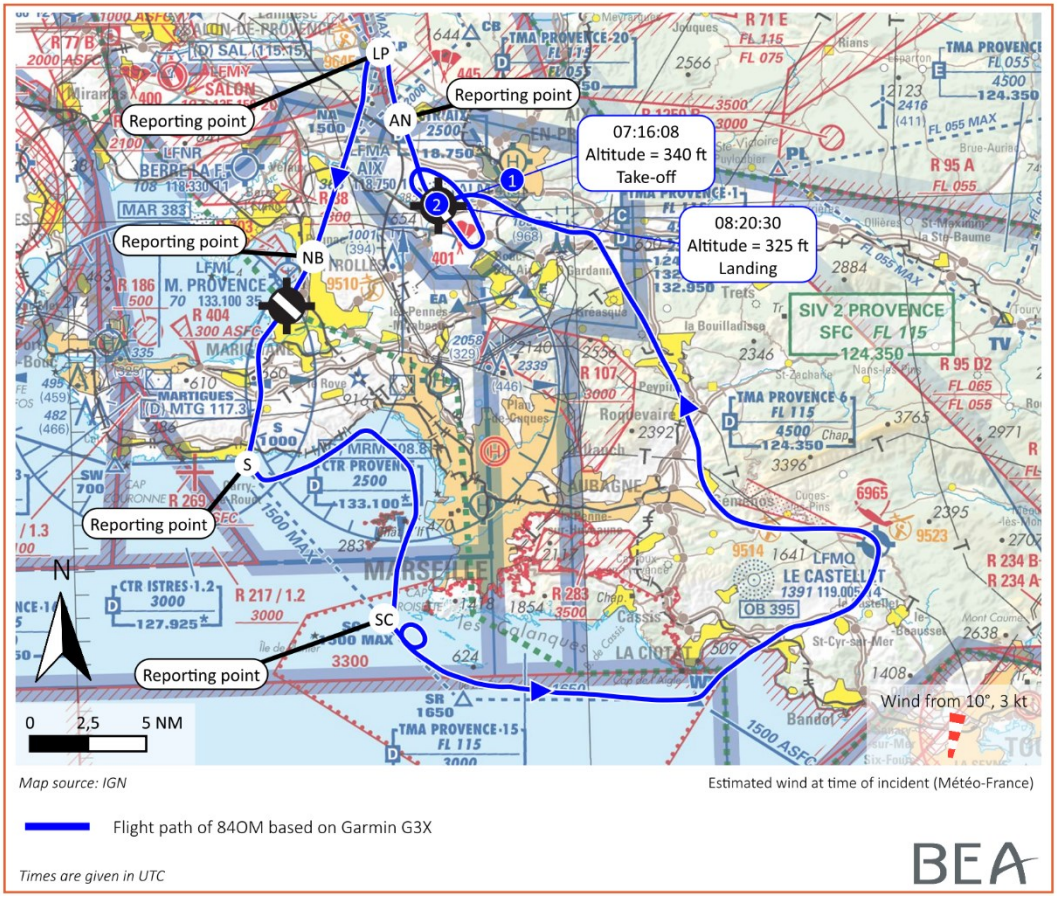


*Figure 1: flight path of microlight (map source: IGN 1:500,000)*

At 07:19:20, while on a northerly flight path at 1,500 ft heading towards reporting point LP via AN, the microlight pilot contacted the Marseille - Provence Tower controller on 133.100 Mhz. He indicated that he was approaching reporting point LP in order to transit to reporting point S before following the coastline to SC (see **Figure 1**). The controller instructed him to *"Head to November Bravo [NB], report at November Bravo*[3]*"*. The pilot read back, "*Report at November Bravo 1500 ft QNH, Fox Sierra* Fox."

Between 07:20 and 07:22, the Tower controller communicated with the crew of flight AFR51ST, who were getting ready to take off from runway 31R at Marseille - Provence airport, and then with the crew of flight AFR65YU, who had been released by the Approach and were performing a RNP approach to 31R. He instructed the latter to call back at 4 NM on final to 31R. He then cleared flight AFR51ST for take-off before being relieved.

At 07:24:57, the microlight pilot indicated that he was approaching reporting point NB. The new Tower controller did not respond and instructed flight AFR51ST, which had taken off and was climbing, to switch to the Provence Approach frequency 127.725 MHz. The microlight pilot believed that this instruction was for him and read back, "*With Approach 127.725 Fox Sierra Fox"*. The Tower controller did not detect the confusion and confirmed "*That's correct*", without repeating the call sign.

[3] All the quoted exchanges in italics between the pilots and the controller are translations of the French exchanges.

At 07:25:12, the crew of flight AFR51ST indicated, "*Approaching 5,000 ft Air France Sierra Tango"* and the Tower controller replied, "*Sierra Tango, yes, switch to 127.725"*. The crew of flight AFR51ST read this back and left the Tower frequency.

At 07:25:23, following a switching error, the microlight pilot tried to contact the Approach controller while still on the Marseille-Provence Tower frequency. He realized the mistake and quickly switched to the Provence Approach frequency, 127.725 MHz, without waiting for a response.

At 07:25:25, the Tower controller responded to the microlight pilot, asking him to stay with him and perform a 360° turn. The microlight pilot, who had already switched to the Provence Approach frequency, did not hear him and continued on his flight path toward reporting point S.

At 07:25:48, the Tower controller cleared flight AFR65YU to land. The crew of this flight read this back. Subsequently, the Tower controller repeatedly attempted to contact the microlight pilot, without response.

At 07:26:18, the crew of flight AFR51ST informed the Approach controller that Sierra Fox was trying to contact him, that he had believed that the message intended for them was for him and that he should have stayed on the previous frequency. The Approach controller repeatedly attempted to contact the microlight pilot on the Approach frequency, without response.

Between 07:26:02 and 07:26:30, the Tower controller continued to repeatedly call the microlight pilot on the Tower frequency, without response. He saw on his screen that the microlight was continuing to advance and was about to cross the runway axis.

At 07:26:37, the crew of flight AFR65YU considered that the approach was not stabilized and decided to carry out a missed approach while the aeroplane was at an altitude of 875 ft (see paragraph 2.2.1). They initiated a go-around without immediately informing the controller.

At 07:26:47, the Tower controller informed the crew of flight AFR65YU that "*VFR traffic that is no longer responding is crossing the runway axis overhead the tower at 1,500 ft*".

At 07:27:01, the crew of flight AFR51ST contacted the microlight pilot on the Approach frequency to inform him that he had mistakenly understood that a message was intended for him and that he should have remained on the previous frequency.

At 07:27:06, a TCAS TA alert, followed by a TCAS RA to "MAINTAIN VERTICAL SPEED, MAINTAIN," was triggered on board flight AFR65YU. In climb, the flight path of flight AFR65YU crossed that of the microlight with a minimum separation of 389 m (0.17 NM horizontally and 775 ft vertically).

At 07:27:11, the crew of flight AFR65YU announced a go-around. The Tower controller responded, specifying that VFR traffic was located "*Somewhere over the runway axis*".

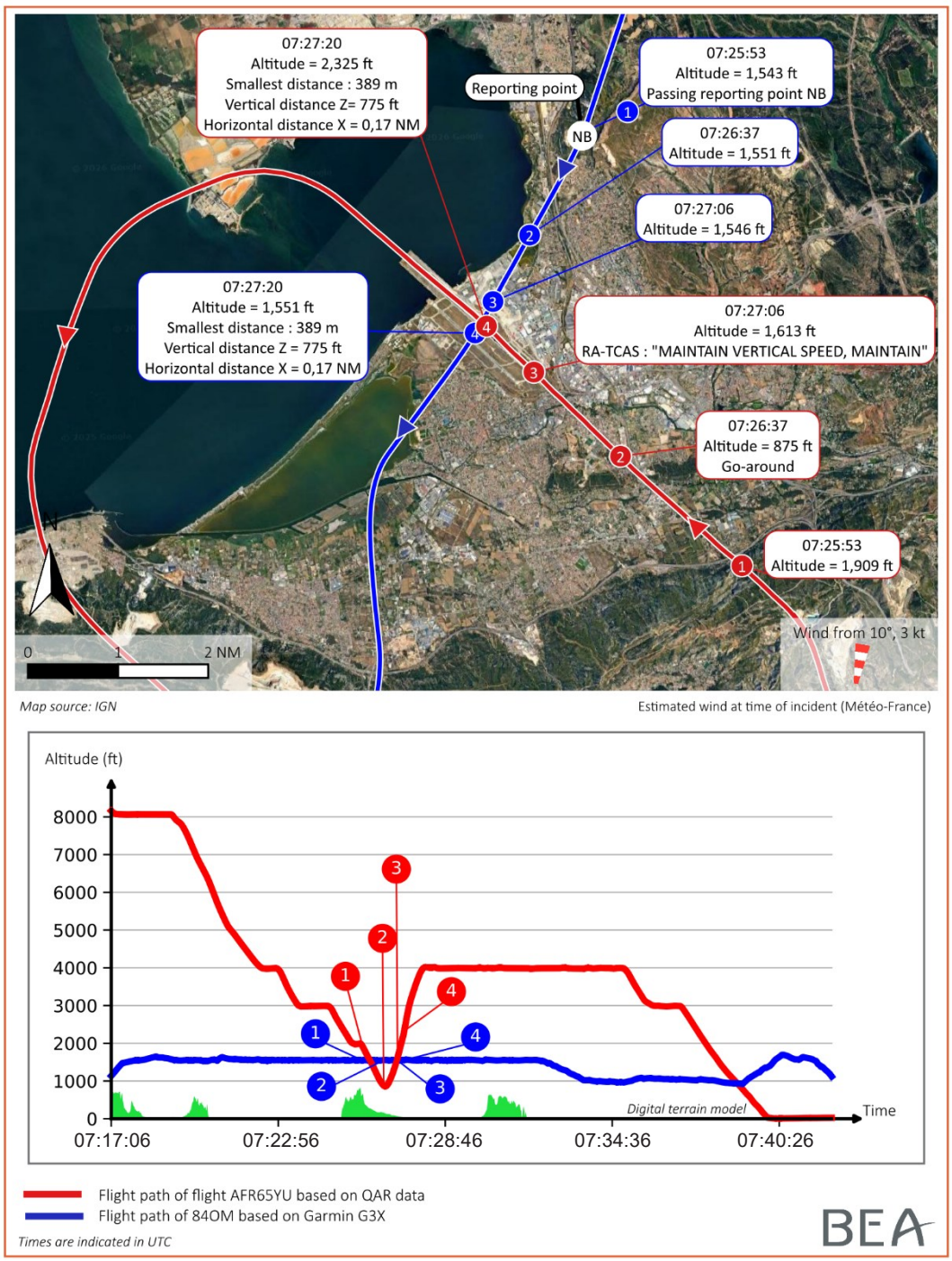


*Figure 2: crossing of both aircraft*

At 07:27:17, the flight path of the microlight crossed the axis of runway 31R.

At the same time, the Approach controller asked the crew of flight AFR51ST if they had managed to contact the microlight pilot: the crew confirmed they had made contact with him. The Approach controller replied that he had never heard the microlight pilot.

At 07:27:23, the microlight pilot contacted the Tower controller again. An explanation ensued, lasting several minutes: the pilot confirmed that he had understood that the instruction to change to the Approach frequency was for him and had not heard the Tower controller's instructions while attempting to contact Approach.

# 2 ADDITIONAL INFORMATION

## 2.1 Organization of airspace and control

The airspace around Marseille is complex. The Class D Provence CTR centred on Marseille Provence airport, extends from the ground up to 2,500 ft. Communications are conducted on the Tower frequency 133.100 MHz. On the day of the incident, the Tower controller had an assistant.


*Figure 3: excerpt from IGN chart 1:250 000 Marseille Rhône delta, valid at the time of the incident (source: SIA)*

The Marseille – Provence aerodrome VAC chart in force at the time of the occurrence specified that, "*An explicit authorization from Provence TWR must be obtained to cross RWY axis*. *Failing that an holding will be executed as follows:*

- *North to South direction: holding at NB without interfering with axis.*
- *South to North direction: holding at SB without interfering with axis*."

Above the CTR, Provence TMA has several sectors which can use different frequencies. In particular, TMA 1 is class D from 2,500 to 4,500 ft AMSL. At the time of the incident, communications for arrivals and departures to the north were on the supplementary approach frequency[4] 127.725 Mhz, while to the south, they were on the approach frequency 121.430 MHz. These frequencies were grouped together and managed by an Approach controller and his assistant.

At the time of the incident, the Approach and Tower controllers were working in separate rooms. They could communicate if necessary, using an intercom.

The different frequencies use separate transceivers, geographically positioned to ensure optimal coverage of the airspaces concerned. For example, the transceiver used for communications on the 127.725 MHz frequency for the northern sector of the TMA is located near Avignon, several kilometres north of Marseille - Provence airport.

A study conducted in 2016 by the DSNA as part of the modernization of air-to-ground communications describes the coverage of the various transceivers. It can be noted that, due to the distance and terrain in the surrounding area, the transceiver in the northern sector of the TMA did not cover the position of Marseille - Provence airport at FL 015. Thus at the microlight's altitude and position, its pilot could neither hear nor be heard by the Approach controller. He could only communicate with other aircraft within direct radio range.

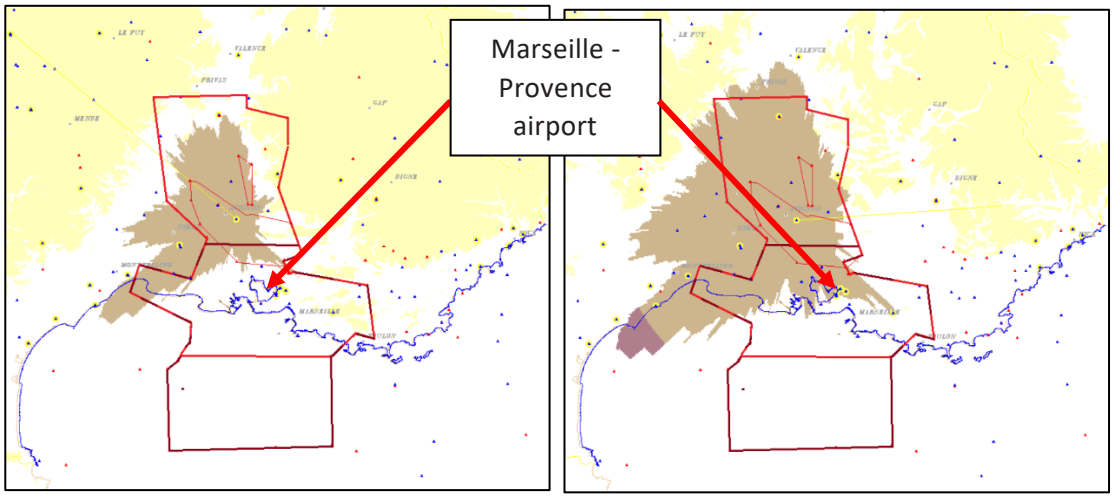


*Figure 4: in brown, coverage of Avignon transceiver at FL 015 on left and FL 030 on right (Sources: DSNA)*

[4] Frequency that can be temporarily attributed to a sector according to operational needs and used when instructed to do so by the control.

The BEA approached the DSNA to study the possibility of extending radio coverage of the Approach frequency to ground level. Technical solutions exist, such as the duplication of radio transmitters, which can extend the areas covered (e.g. the CLIMAX system[5]). However, these systems can generate interference, particularly when the transmitters are close together. They also involve installation and maintenance costs. The DSNA indicated that it does not currently plan to conduct a study to deploy a technical solution.

## 2.2 Pilot information and statements

### 2.2.1 Crew of flight AFR65YU

The captain had been flying with the operator since 1997 and had logged approximately 12,000 flight hours. The co-pilot had flown in business aviation before joining HOP! and had logged approximately 1,580 flight hours at the time of the incident.

The captain and co-pilot had flown five legs together the previous day, terminating in Toulouse at 22:00, during which they had had to deal with a bird strike. It had been a short night, with a wake-up at around 05:30. On the day of the incident, due to a strike by air traffic controllers in Toulouse, the first flight to Lyon was delayed by about an hour and a half. They explained that they were feeling tired.

The weather conditions were good during the flight between Lyon and Marseille. During the descent, shortly before flying through FL 090, the controller informed them of a runway change for an RNP 31R approach, before clearing them for the approach while they were at approximately FL 080. The crew explained that they forgot to engage the Approach Mode upon flying through 2,000 ft. At around 950 ft, the PM considered that the approach was not stabilized and suggested a go-around, which the PF immediately accepted: he rejected the approach and initiated a go-around.

The pilots explained that they could hear the controller attempting to contact VFR traffic in a concerned tone but added that they were not aware of the traffic's position.

Just after beginning their climb and retracting the landing gear, the pilots received a TCAS TA alert, followed very shortly afterwards by a TCAS RA to maintain vertical speed, which the crew complied with. The PM explained that he heard the controller speaking at that moment, but the workload was too heavy to respond.

It was only after receiving the TCAS messages that the pilots saw the microlight that had crossed the runway axis below them.

### 2.2.2 Pilot of 84OM

The 62-year-old pilot held a microlight pilot certificate obtained on 24 May 2023. He had owned 84OM, based at Aix-les-Milles, since September 2023. He kept a logbook detailing his flight hours, although microlight regulations do not require it. At the time of the incident, he had flown 175 flight hours, including 80 hours on 84OM.

[5] Radio transmitter duplication system with offset carrier in a 25 kHz channel spacing, to extend areas covered.

The pilot explained that he had already flown through the Provence CTR six or seven times. As Aix-les-Milles aerodrome was operating with the A/A frequency, he had planned to exit the Aix CTR at reporting point AN before joining reporting point LP to enter the Provence CTR (see **Figure 1**).

On first contact, the Provence Tower controller asked him to call back on arriving at reporting point NB. On arriving at this reporting point, the pilot checked in and understood that the Tower controller was asking him to contact Provence Approach. He explained that he was surprised by this instruction, which he read back and which the Tower controller confirmed. The pilot interpreted the Tower controller's message as an instruction to switch to the Approach frequency and to continue his transit to reporting point S.

He stated that he was aware that crossing the axis required an explicit clearance and had asked himself whether he should perform a 360° holding pattern. However, he added that, being in Class D airspace, any change to the flight path without a clearance was prohibited: he expected an explicit instruction to perform a 360° pattern. The Tower controller's instruction, followed by his confirmation, reassured him that he could continue.

The pilot explained that, wanting to select the Provence Approach frequency, he made a mistake that led him to transmit his first message to the Approach while still transmitting on the Tower frequency. He immediately realized his selection error and switched to the Approach frequency without waiting for a response to the message. He then repeated his message on the Approach frequency but received no response to his subsequent messages. He added that he knew he had selected the correct frequency because he could hear other conversations concerning the Approach.

Shortly afterwards, the pilot of another aeroplane contacted him, explaining that he had probably understood that a clearance was intended for him whereas this was not the case, and that he should contact the Tower again, which the microlight pilot indicated he did promptly. It was only after speaking with the Tower controller following the incident that he realized his mistake.

### 2.2.3 Controllers

The Tower controller explained that when he started his shift, the microlight pilot was already in contact, en route to reporting point NB. He was handling several flights simultaneously, including the departing AFR51ST flight. When he asked the latter to contact the Approach, he did not realize that it was the microlight pilot who answered. It was only a few seconds later that he realized the read-back error. He then asked the microlight pilot to stay with him and perform a 360° holding pattern but observed that there was no reply.

The controller explained that he could see the microlight on his radar screen and was aware that it was going to cross the runway axis, without radio contact, while flight AFR65YU was on final. He was concerned that flight AFR65YU would carry out a go-around, and it was when he alerted the crew of AFR65YU to the presence of VFR traffic that they announced they were going around.

The approach controller, for his part, indicated that he never heard the microlight pilot.

### 2.2.4 Crew of flight AFR51ST

On leaving the Provence Tower frequency , the crew of flight AFR51ST heard the pilot of 84OM read back the clearance to change to the Approach frequency. Some time later, while climbing through 5,000 ft, they heard the microlight pilot repeatedly attempt to contact the Approach. Realizing the read back error, they contacted the microlight pilot to inform him of this and suggest that he switch back to the Tower frequency. They subsequently no longer heard him on the frequency.

## 3 CONCLUSIONS

*The conclusions are solely based on the information which came to the knowledge of the BEA during the investigation.*

### Scenario

The microlight pilot read back a message from the Provence Tower controller, indicating a frequency change, addressed to the crew of flight AFR51ST departing from Marseille - Provence airport. The Tower controller did not notice the read back error and confirmed the frequency change.

The microlight pilot interpreted the instruction as acceptance of his transit through the CTR, which required him to cross the axis of runway 31R, which was in use (see paragraph 2.2.2). He then left the Tower frequency for the Approach frequency. Shortly afterwards, the Tower controller realized the read-back error and tried unsuccessfully to contact the microlight pilot again to instruct him to remain on the Tower frequency and perform a 360° holding pattern.

On the Provence Approach north sector frequency, the microlight pilot and the Approach controller could not hear each other due to the microlight's position, which was below the area covered by the transceiver located several kilometres away. At the same time, the Tower controller no longer had a means of contacting the microlight pilot, who had left his frequency.

As the microlight approached the runway axis, the crew of flight AFR65YU, on final for runway 31R, realized they were not stabilized and decided to reject the approach. The go-around flight path of flight AFR65YU conflicted with that of the microlight, and the pilots of the two aircraft were not aware of each other's respective positions. A TCAS alert was triggered on board flight AFR65YU and the minimum separation between the two aircraft was 389 m (0.17 NM horizontally and 775 ft vertically).

The crew of flight AFR51ST, who at this time were at more than 5,000 ft and climbing, could hear the microlight pilot’s and Approach controller’s messages. They took the initiative of contacting the microlight pilot to inform him of the error and suggested that he contacted the Tower controller again, which the microlight pilot did. At this point, the axis had been crossed and the airprox had already occurred.

### Contributing factors

At 1,500 ft, overhead Marseille - Provence airport, the microlight was flying below the area covered by the transceiver in the northern sector of the Provence TMA. This lack of radio coverage at low altitude contributed to the read-back error not being recovered. After the microlight pilot switched to the Provence Approach frequency, he and the Approach controller were unable to communicate.

Only the timely outside intervention of the crew of flight AFR51ST made the microlight pilot realize that he needed to re-establish contact with the Provence Tower frequency.

## Safety lessons

### Complying with phraseology

In Class D airspace, and even more so in complex airspace such as that of the Marseille region, any manoeuvre must be explicitly cleared. If in doubt, it is always possible and necessary to request confirmation from the controller.

Generally speaking, strict compliance with the phraseology is an essential safety element that has been highlighted in numerous past incidents. While the use of abbreviated phraseology may seem to save time during busy periods, it primarily removes a safety barrier, thereby increasing the likelihood of read-back errors and compromising their detection.

The use of an abbreviated radio call sign (such as F-SF instead of F-JKSF) is only authorized after an initial exchange using the full call sign. In the present case, the initial exchange using the full call sign did take place, shortly followed by a change in Tower controller. Subsequently, when the microlight pilot understood that the instruction to switch to the Approach frequency was for him, he requested confirmation using the abbreviated call sign F-SF. The Tower controller simply replied, "*That's correct*", without mentioning a call sign. This wording may have reassured the microlight pilot to leave the Tower frequency and continue the transit while he sought clarification with respect to an instruction that surprised him.

Regarding commercial flight call signs, radio call signs, such as AFR51ST, are always given in full to avoid any ambiguity in the assignment of messages. Following a safety incident resulting in a loss of separation, the DSNA Operations Directorate published a national bulletin in 2019 reiterating this point. In the present case, after the change in controllers, the Tower controller communicated with the crew of flight AFR51ST using "Air France Sierra Tango" or "ST."

***The BEA investigations are conducted with the sole objective of improving aviation safety and are not intended to apportion blame or liabilities.***