

**DATA SUMMARY**

**LOCATION**

Date and time	<b>Sunday, 27 October 2013; at 15:18 local time</b>
Site	<b>Malaga Airport (Spain)</b>

**AIRCRAFT**

Registration	<b>CS-TMU</b>	<b>N111HY</b>
Type and model	<b>BEECHCRAFT 1900 D</b>	<b>ROCKWELL COMMANDER</b>
Operator	<b>TAP</b>	<b>Private</b>

**Engines**

Type and model	<b>PRATT &amp; WHITNEY PT6A-67D</b>	<b>LYCOMING IO-540 T4B5</b>
Serial Number	<b>2</b>	<b>1</b>

**CREW**

	Pilot	First officer	Pilot
Age	<b>64 years</b>	<b>37 years</b>	<b>72 years</b>
Licence	<b>ATPL(A)</b>	<b>CPL(A)</b>	<b>PPL(A)</b>
Total flight hours	<b>8,500 h</b>	<b>870 h</b>	<b>900 h</b>
Flight hours on the type	<b>Unknown</b>	<b>Unknown</b>	<b>843 h</b>

**INJURIES**

	Fatal	Serious	Minor/None	Fatal	Serious	Minor/None
Crew			<b>2</b>			<b>1</b>
Passengers			<b>17</b>			
Third persons						

**DAMAGE**

Aircraft	<b>None</b>	<b>None</b>
Third parties	<b>None</b>	<b>None</b>

**FLIGHT DATA**

Operation	<b>Commercial Air Transport – Scheduled – International – Passenger</b>	<b>General aviation – Private</b>
Phase of flight	<b>Takeoff – Initial climb</b>	<b>Maneuvering – Low-altitude flight</b>

**REPORT**

Date of approval	<b>12 November 2014</b>
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## 1. FACTUAL INFORMATION

### 1.1. Description of the event

On 27 October 2013 at 15:18 local time<sup>1</sup>, a Beechcraft 1900D aircraft, callsign TAP1075, took off from runway 13 at the Málaga airport (LEMG) en route to the Lisbon airport (LPPT) under instrument rules (IFR). Onboard were a crew of two pilots and seventeen passengers.

During the climb the crew informed ATC that they had received a traffic advisory when a Rockwell Commander, registration N111HY, which was on a private visual (VFR) flight along the coast, intercepted the extended centerline of runway 13 (QMS) and approached the Beechcraft.

ATC warned the private flight of its proximity to the other aircraft, after which the first aircraft turned 180° to the left, the two aircraft being separated by 0.2 NM horizontally and by 225 ft. vertically, with the Rockwell Commander above and to the left of the Beechcraft, which did not have to take any evasive actions and continued climbing normally.

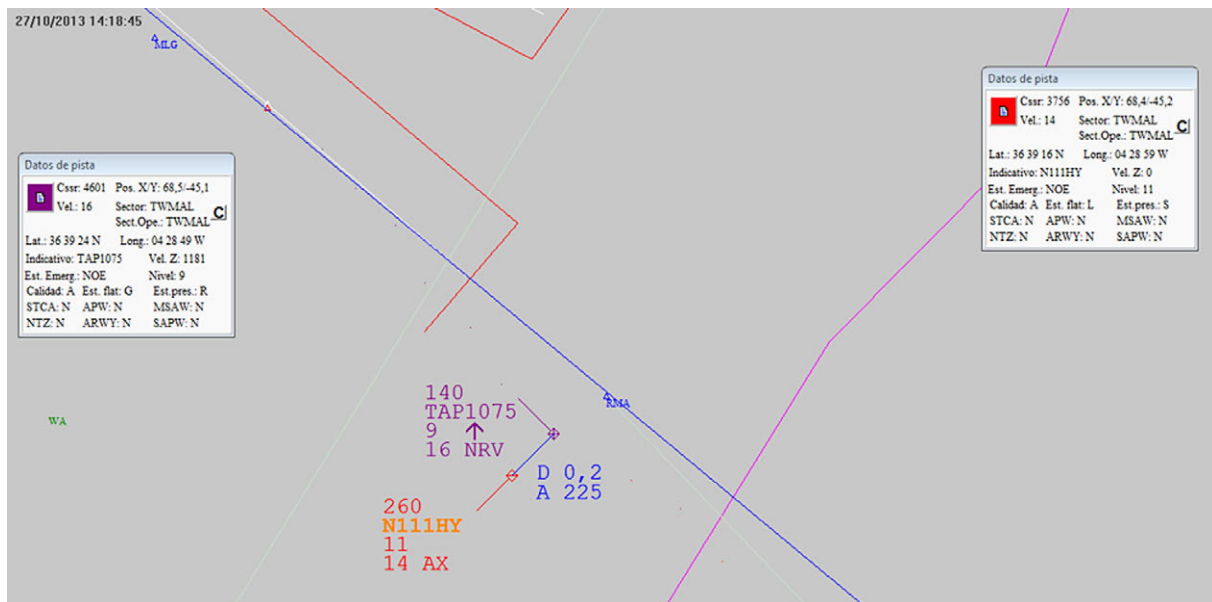


Figure 1. Aircraft on radar screen at point of minimum separation

<sup>1</sup> Unless otherwise specified, all times are local. To obtain UTC subtract two hours from local time.

## 1.2. Personnel information

### 1.2.1. Crew of airplane CS-TMU

The captain, 64, had an airline transport pilot license (ATPL(A)) and class ratings for the B-300/1900 models, an instrument rating (IR) for multi-engine (ME) airplanes and a class instructor rating (CRI(SPA)) for the B-300/1900 models. He had 8,500 flight hours.

The first officer was 37 years old and had a commercial pilot license (CPL(A)). He also had a rating for the B-300/1900 models and an instrument rating for multi-engine airplanes (IR(ME)). He had 870 flight hours.

They both had valid and in force licenses, ratings and medical certificates.

### 1.2.2. Crew of airplane N111HY

The pilot, 72, had a private pilot license (PPL(A)). His license and medical certificate were valid. He had a total of 900 flight hours, of which 843 had been on the type.

### 1.2.3. Tower controller

The tower controller, 35, had an EU air traffic controller license (CATCL) and an aerodrome ADI instrument control rating, with the following endorsements: control tower (TWR), ground control (GMC), ground surveillance (GMS), air control (AIR) and radar (RAD).

He also had an approach surveillance (APS) rating with radar (RAD) and terminal control (TCL) endorsements. His language endorsement showed level 6 for both Spanish and English.

The license, ratings, endorsements and the relevant medical certificate were all valid and in force. His license also had an area control surveillance (ACS) rating with radar (RAD) and terminal control (TCL) ratings, but it had expired.

He began as a controller trainee at the tower of the San Sebastian airport (LESO) on 4 July 2005, and was certified on 7 October of that same year. He had been assigned as a tower controller at the Málaga airport since 1 August 2011.

### 1.2.4. Supervisor

The supervisor, 37, also had an EU air traffic controller license (CATCL) and the same ratings and endorsements as the tower controller. All were valid and in force, as was the medical certificate.

He also had an instructor's endorsement (OJTI). His language endorsement showed level 6 in Spanish and 4 in English.

He began as a controller trainee at the tower of the Málaga airport (LEMG) on 29 July 2003, and was certified on 19 November of that same year. He was certified an instructor on 1 October 2008 and certified a supervisor on 1 June 2009.

### 1.3. Aircraft information

The Beechcraft 1900D aircraft, registration CS-TMU, was built with serial number EU-335 and had a maximum takeoff weight (MTOW) of 7,765 kg. It is a nineteen-seat pressurized airplane with two Pratt & Whitney Canada PT6A-67D 1,279-cv turboprop engines. It is normally used for commuter routes and at airports with relatively short runways.

The Rockwell Commander airplane, registration N-111-HY, manufactured with serial number 14569, is a two-seat airplane with a Lycoming IO-540 SER engine and a McCauley B3D326419 propeller. Its maximum takeoff weight was 1,474 kg.

### 1.4. Airport information

The Málaga airport (LEMG) is 8 km northeast of the city and has an ICAO category of 4-E<sup>2</sup>. Its master plan was approved by Ministry of Development Order 2614/2006, and its main activity is scheduled international passenger traffic.

According to the information in the AIP (Aeronautical Information Publication), its reference point (ARP) is at coordinates 36°40'30" N – 4°29'57" E and at an elevation of 16 m (52 ft.).

It has one 2,400-m long, 45-m wide runway in a 13-31 orientation, and another in a 12-30 orientation that is 2,750 m long and 45 m wide.

It is located in class D<sup>3</sup> airspace and the transition<sup>4</sup> altitude is 6,000 ft. (1,850 m).

The Málaga airport control zone (CTR) is a space that extends upward from the ground and comprises two circular areas: one 15 NM in radius to the north of the aerodrome

<sup>2</sup> (4) Runway length equal to or greater than 1,800 m. (E) Uses as reference aircraft those with a wingspan of 52 to 65 m and an outer main gear span of 9 to 14 m.

<sup>3</sup> Spain's Air Traffic Regulation (RCA) specifies that in class-D airspace, all flights are provided with air traffic control (ATC) service, IFR flights are separated and information and guidance is given to VFR flights.

<sup>4</sup> Spain's Air Traffic Regulation defines the transition altitude as at or below which an aircraft's vertical position is controlled in reference to altitudes.

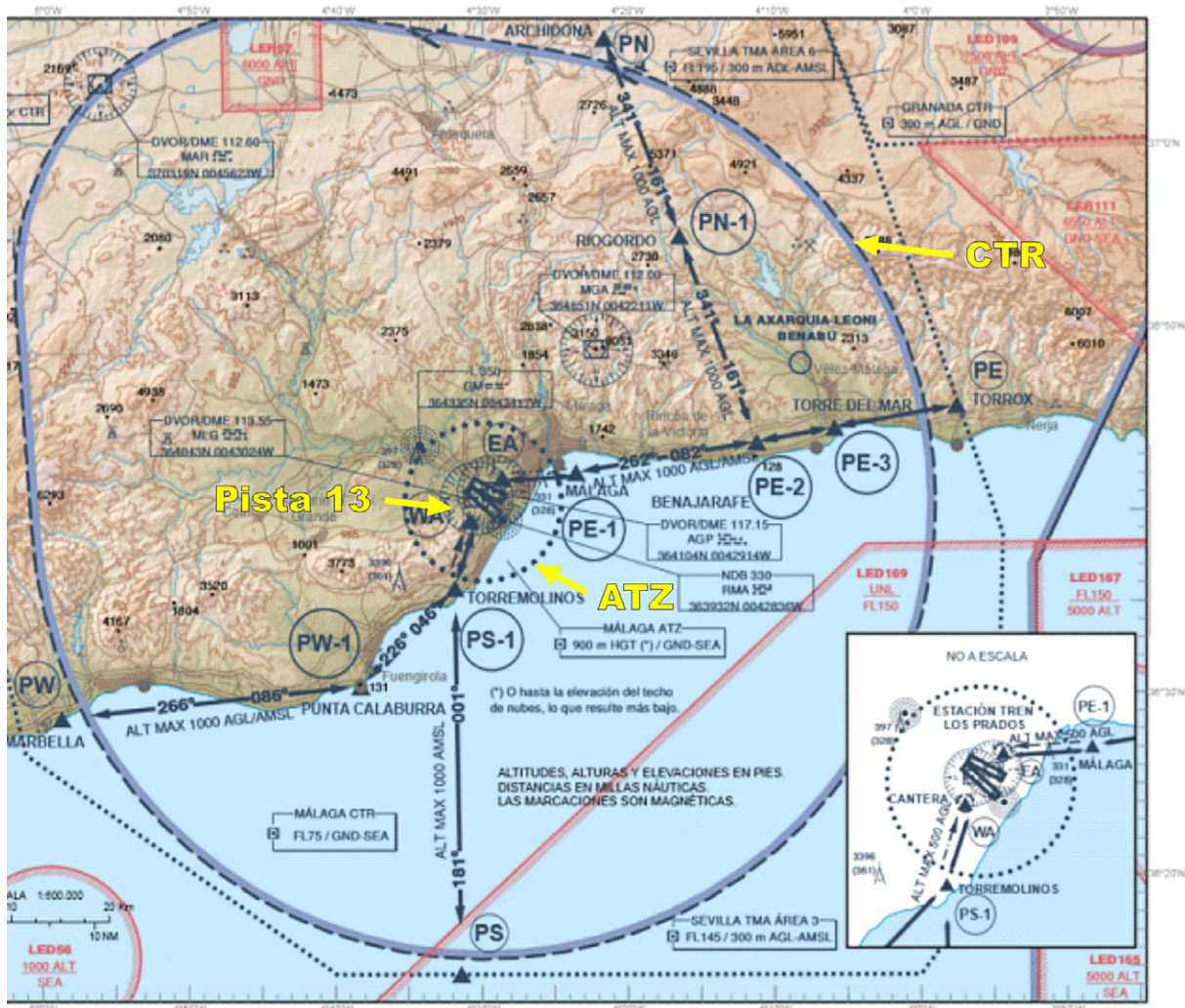


Figure 2. Visual approach chart for LEMG

centered at 36°52'21"N - 4°43'32"W, and the other 25 NM in radius and centered at the ARP. The two intersect at their common tangents. In this area ATC services are provided by approach control (APP).

The aerodrome traffic zone (ATZ) of the Málaga airport is an 8-km radius circle centered at the ARP. In this zone, ATC is provided by the airport tower (TWR).

Based on the information in the AIP, the tower could, under the conditions specified in Spain's Air Traffic Regulation, clear aircraft with VFR flight plans equipped with a transceiver to enter and exit the Málaga CTR as long as they do so via the corridors and sectors specially provided for this purpose.

To enter the ATZ (Málaga APP-Málaga TWR) via the entrance point to the CTR, aircraft must be cleared by Málaga APP to proceed via specific routes to the reporting points to enter the ATZ, while keeping a minimum altitude of 1,000 ft. AGL/AMSL, until they are

cleared by the TWR to join the aerodrome's traffic pattern: PE-1 (Málaga) if entering from PN/PE & PS-1 (Torremolinos) if entering from PW/PS. In some cases aircraft must hold at the aforementioned points, always toward the side that is furthest away from the runway in use.

VFR aircraft wishing to fly through the CTR must contact Málaga APP over the visual entry points PN, PE, PS, and PW and request clearance to cross the CTR at the required altitude or level. VFR aircraft wishing to fly through the CTR along the coastline using the routes and altitudes specified in the visual approach chart must maintain a minimum altitude of 500 ft. AGL in both directions in the segment between PE-1 and PS-1.

## 1.5. Additional information

### 1.5.1. Report from the crew of the BEECHCRAFT 1900 D

The captain of the aircraft reported that they entered runway 13 via access 2H and took off, with the first officer as the pilot flying, following the 137° radial.

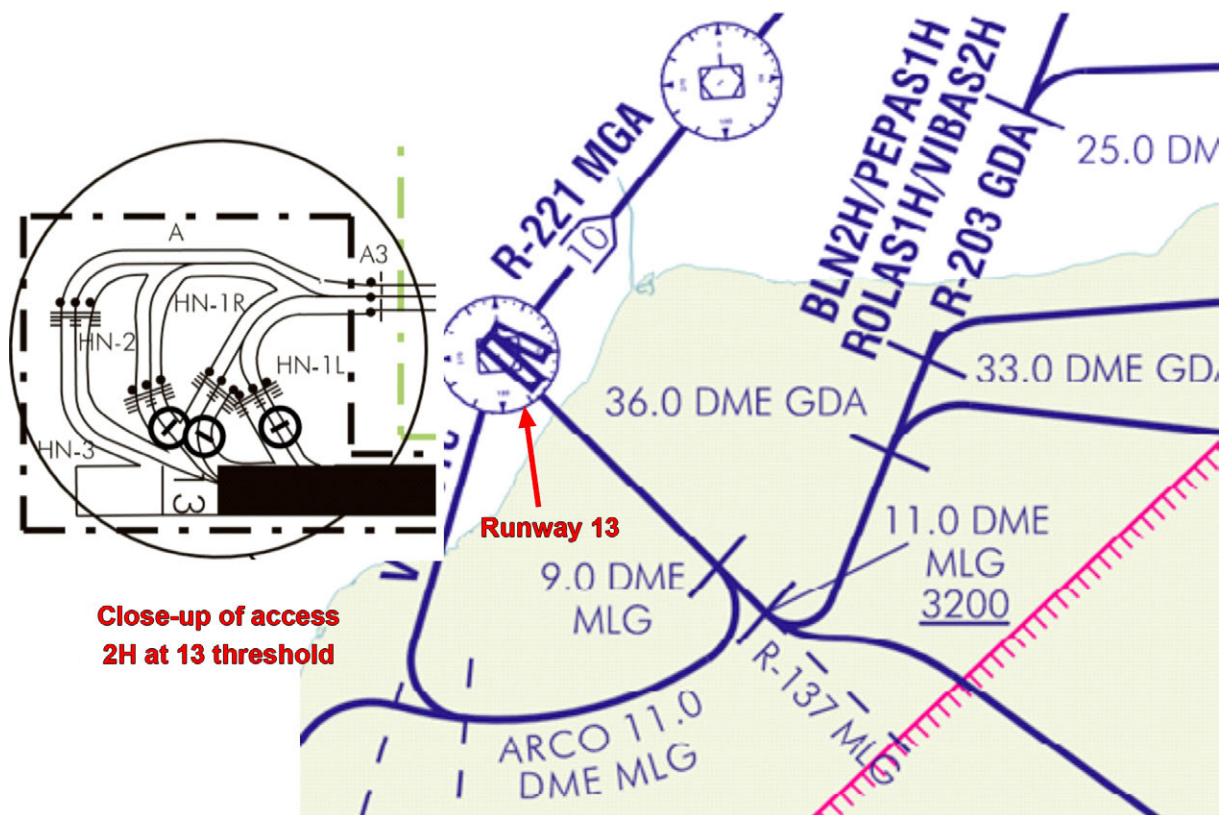


Figure 3. Standard instrument departure chart for runway 13 at LEMG

While flying at an altitude of between 1,500 and 2,000 ft at 160 KIAS and a climb rate of 1,500 ft/min, they received a traffic advisory (TA) on the anti-collision system (TCAS). Since it was not accompanied by any other notifications, they continued climbing on the standard departure route without making any evasive maneuvers.

### 1.5.2. *Report from the pilot of the Rockwell Commander*

He was making a local VFR flight from the La Axarquía aerodrome (LEAX) along the coast flying at an altitude of 1,000 ft, and was headed to reporting point PW of the airport's TMA in good weather conditions (CAVOK). The duration of the flight was one hour.

According to his account, as he was flying over the Málaga TMA reporting point PS1 at an altitude of 1,000 ft, he called the airport tower and asked permission to cross the runway from reporting points PS1 to PE1. The tower cleared him to proceed to point PE1, which is over the port of Malaga. He approached the runway from the west and while he was still fairly far away from the runway centerline, flying over the old Benítez military base, he heard the TAP airplane reporting the presence of a small airplane close to and below him. Since the information he had from approach control was that he was the only private flight in the area, he immediately started turning to his left, toward the north. The tower asked him for his position, which he provided. The controller then notified him of the TAP's complaint and asked the crew of this airplane if they were going to report the occurrence.

They replied in English that it was not necessary, but to be careful in the future as it could be dangerous ("it's not necessary, but take care in future it could be dangerous"). The controller then informed him that he was going to write a report on the incident, and the pilot was under the impression that the controller "was a bit confused".

As soon as he landed at the destination aerodrome, the ATC supervisor at the Málaga airport tower called the pilot of the private airplane to ask for an explanation, who said that under those circumstances it was not necessary to ask for permission to cross the runway centerline if he had already been cleared to proceed to point PE1, which is on the other side of the airport.

The supervisor explained that they were not going to pursue the case or report the pilot, and told him that in similar cases it is best to contact the controller as often as needed to be sure that the action being taken is correct.

### 1.5.3. *Report from the tower controller*

The duty controller in the tower reported that the VFR airplane with callsign N111HY was transferred by the approach controller (Málaga APP on 148.5 MHz) to the tower

frequency (LCL TWR 118.15 MHz) before reaching reporting point PS1, which is the clearance limit for VFR flights. In the initial communication he was instructed to continue along the coastline and informed about VFR traffic of concern in the opposite direction and that by that point had already been transferred to Málaga APP. The pilot reported having the other traffic in sight. Immediately afterwards the airplane with callsign TP1075 was cleared to enter runway 13 and take off, with both instructions being acknowledged. Communications with this airplane were also held on the tower frequency. According to his statement, after speaking with another aircraft, he saw on the screen that the VFR traffic N111HY seemed to be continuing along the coastline, intending to cross the QMS, while TAP1075 was already on its takeoff run. He quickly instructed airplane N111HY not to cross the runway centerline, telling him there was an aircraft on its takeoff run. Airplane N111HY reported that he was starting a 180° turn and asked for the first time if he was authorized to cross the runway centerline.

He answered, repeating not to cross and informing him once again that the traffic was already airborne above the runway. He asked him to report if he had the traffic in sight. When he received no reply, he once more asked him to report if he had the departing traffic in sight. The next communication was from TAP1075, which reported having traffic ahead of him and that the situation was dangerous. The tower supervisor then took over the frequency to inform the aircraft involved that the incident would be reported. TAP1075 reported having received a TCAS TA.

During a telephone call to the tower that same afternoon, the pilot of airplane N111HY explained to the supervisor that he interpreted the instruction to “continue along the coast line” during their initial contact as an implicit clearance to cross the runway centerline. The supervisor informed him that a maneuver as critical to safety as crossing the centerline of the runway in use always requires an explicit clearance and that he should have stopped at the visual limit point (PS1) or at least have asked the tower for instructions, and that under no circumstances can he cross an extended runway centerline without an explicit clearance.

He also informed the pilot of the obligation to listen in on other communications on his radio frequency, on which TAP1075 was cleared first to enter runway 13 and then to take off, both of which were acknowledged. Despite this, N111HY proceeded to cross the runway 13 extension.

#### 1.5.4. *Report from the supervisor*

The supervisor said that the local controller instructed traffic N111HY, which was headed to reporting point PS1, to continue along the coastline after informing him of traffic in the opposite direction. According to his account, the controller then cleared aircraft TAP1075 to take off.



Traffic N111HY continued over PS1 with the intention of crossing the extended runway centerline. The controller informed him he was not cleared and that there was an aircraft on its takeoff run. The airplane made a 180° turn to avoid intercepting and conflicting with the traffic, though this worsened the situation as it put the two aircraft closer than they were at the start.

He subsequently went on the frequency to communicate with N111HY and ask who had cleared him to cross the runway, to which the pilot replied he was told to continue on course. The supervisor told him that had not been the instruction; instead, he had been told to continue along the coastline until he was cleared. He was also informed that an incident report would be filed.

Traffic TAP1075 then also reporting having received a TCAS.

Later, the pilot of N111HY telephoned the tower control room to explain he had interpreted the instruction to continue along the coastline as authorizing him to cross the airfield. The supervisor explained that he was cleared to a limit point, which in this case was PS1, that he could not cross the extended runway centerline without an explicit clearance, and that he should have continued along the coastline to limit point PS1 and waited for clearance to cross, or requested instructions from the tower before reaching PS1. The pilot of N111HY apologized for the misunderstanding.

#### 1.5.5. *Analysis of the incident carried out by AENA Control*

AENA Control wrote a report analyzing the event, which it classified as a significant operational safety incident due to a mistaken clearance by the control tower that resulted in an improper and potentially dangerous separation with a TCAS advisory. Based on its assessment, aircraft N111HY contacted the tower on its frequency to report it was flying at an altitude of 1,000 ft and proceeding to point S en route to point E. The tower instructed it to continue along the coastline and provided information on traffic of concern. The clearance at no point instructed him not to cross the runway 13 extension. The controller later cleared TAP1075 to line up and take off on 13 thinking that N111HY was not going to cross the QMS. By the time he realized it, it was too late and he immediately ordered N111HY not to cross the runway because there was traffic taxiing at the time. Airplane N111HY replied that it was turning 180° to the left, a decision that worsened the situation as it took the two aircraft closer to each other. When TAP1075 informed the tower that it had traffic ahead, ATC replied that the traffic was not cleared to cross the runway. The supervisor contacted N111HY to tell him that he had been instructed to continue and stop before crossing the runway, though the pilot questioned that instruction. Afterwards, TAP1075 reported receiving a TCAS advisory, as the minimum radar separation had been 0.4 NM horizontally and 300 ft vertically.

Aena Control concluded that the clearance given by ATC was incorrect as it instructed N111HY to continue along the coastline but not to stop before crossing the QMS, resulting in a potentially dangerous situation. The incident was assigned a severity class of B with ATM contribution. It recommended that the Málaga ATC station consider writing a standard procedure for dealing with crossings involving visual aircraft.

## 1.6. Communications

At 14:15:52, aircraft N111HY contacted the Tower on its frequency (118.15 MHz) and reported that it was flying at an altitude of 1000 ft., squawk code 3756 and en route to point S1 from point E1. From the tower (TWR) the controller (LCL) instructed it to continue along the coastline and gave information on traffic of concern (DNC01YA). At no point did the clearance specify not to cross the runway.

At 14:16:43 the TWR LCL cleared TAP1075 to line up and take off on runway 13.

At 14:17:56 the TWT LCL ordered N111HY not to cross the active runway as there was traffic taxiing at the moment. N111HY replied that it was making a 180° turn. By then N111HY was already crossing the QMS.

At 14:18:08 N111HY asked if it was cleared to cross the QMS, to which the TWR LCL replied that there was airborne traffic over the runway, and asked if it had the traffic in sight.

At 14:18:25 N111HY started its turn left, and at 14:18:29 the TWR LCL again asked N111HY if it had the traffic in sight. At that moment the separation between the aircraft was 1.1 NM horizontally and 500 ft. vertically.

By 14:18:38 the separation between the two aircraft had dropped to 0.7 NM horizontally and 400 ft. vertically.

By 14:18:40 the separation between the two aircraft had dropped to 0.4 NM horizontally and 225 ft. vertically. Airplane TAP1075 reported traffic ahead to the tower. The controller replied that he was aware of it, that the traffic had not been cleared to cross the active runway and that he assumed the pilot of the other aircraft was not going to cross the runway. The controller apologized and the crew of TAP1075 told him they were not going to report the event but to please be careful as it could be dangerous.

The table below contains a transcript of all the communications between the controller and the two aircraft:

HORA	ESTACIÓN	CONTENIDO DE LA COMUNICACIÓN
14:15:52	N111HY	Málaga N111HY?
14:15:59	LCL	N111HY go ahead.
14:16:02	N111HY	Buenas tardes 1000' PE1 squawking 3756 for PS1. Over?
14:16:16	LCL	N111HY continue on the coastline. For your information there is a traffic opposite direction, same altitude. Is a light aircraft.
14:16:26	N111HY	N111HY what is the position of the light aircraft at this moment?
14:16:30	LCL	Right is 1 mile at 12 of your position opposite direction.
14:16:34	N111HY	O.K. we have it in contact N111HY. Thank you.
14:16:37	LCL	The other traffic have information about you Sir.
14:16:43	LCL	TAP1075 line up and wait runway 13.
14:16:47	TAP1075	Line up and wait runway 13 TAP1075.
14:16:50	LCL	TAP1075 wind is 120-08 cleared for take off runway 13.
14:16:54	TAP1075	Cleared for take off runway 13 TAP1075.
14:17:56	LCL	N111HY do not cross the runway active. Traffic now rolling now.
14:18:02	N111HY	N111HY we make 180.
14:18:06	LCL	N111HY?
14:18:08	N111HY	Málaga N111HY are we cleared to cross the centerline?
14:18:11	LCL	Negative Sir. Negative. There is a traffic now airborne. Is now over the runway. Report insight.
14:18:29	LCL	N111HY do you have the traffic insight?
14:18:40	TAP1075	Málaga TAP1075 we have a traffic in front of us.
14:18:47	LCL	I know Sir. This traffic were not cleared to cross the runway active. Sorry about that Sir.
14:18:55	TAP1075	Well. I will not report, but please take care because it can be dangerous.
14:19:03	LCL	Well. I know Sir. That traffic was supposed not to cross the runway active, he was supposed not to cross the runway active. Sorry about that Sir.
14:19:11	TAP1075	TAP1075

## 2. ANALYSIS

All of the information analyzed and all of the statements collected agree on the description of the events.

There was a slight discrepancy in the perception of the tower controller and supervisor, which does not agree with what actually happened, in that they said that they had told the pilot of the airplane on visual flight not to cross the runway 13 extension, which he questioned since in fact they had not told him that, merely instructing him to continue along the coastline.

While this is no doubt their usual practice and they thought they had done so this time as well, in fact on this occasion they had forgotten to include this instruction in the communication.

In this regard, the analysis made by AENA Control seems correct, as does its proposed recommendation, in which the problem is identified, a problem that is already being addressed by the control station.

It would also be worthwhile for the AENA report to mention the fact that it is the controller who should have taken the initiative and instructed the pilot on how to proceed, and not let the pilot decide what action to take, a decision that in this case was not the most opportune.

In addition to the above, we should also note that the pilot of that aircraft should have asked for clearance to cross the extended runway 13 centerline, not only because it is specified in the AIP when flying over 500 ft., but as a general good practice to adopt when flying in the vicinity of a busy, controlled aerodrome.

### **3. CONCLUSION**

The incident took place because the controller did not instruct the pilot on visual flight not to cross the extended centerline of runway 13. The pilot also did not request said clearance when, due to the altitude at which he was flying, he was required to do so.

### **4. SAFETY RECOMMENDATIONS**

None.