الهيئة العامة للطيران المدني
GENERAL CIVIL AVIATION AUTHORITY

United Arab Emirates

Air Accident Investigation Sector

Accident

- Final Report -

AAIS Case N^{o} AIFN/0018/2014

Cabin Crewmember Injured During Taxi

Operator:	Emirates Airline
Make and model:	Airbus A330-243
Nationality and registration:	The United Arab Emirates, A6-EKR
Place of occurrence:	Dubai International Airport
State of Occurrence:	The United Arab Emirates
Date of occurrence:	23 October 2014

Air Accident Investigation Sector
General Civil Aviation Authority
The United Arab Emirates

Accident Brief

GCAA AAI Report No.:	AIFN/0018/2014
Operator:	Emirates Airline
Aircraft Type and Registration:	Airbus, A330-243, A6-EKR
Manufacturers Serial Number (MSN):	251
No. and Type of Engines:	Two, RR Trent 700
Date and Time (UTC):	23 October 2014, 0200
Location:	Dubai International Airport (OMDB)
Type of Flight:	Scheduled Commercial Passenger
Persons Onboard:	288
Injuries:	1

Investigation Objective

The sole objective of this Investigation is to prevent aircraft accidents and incidents. It is not the purpose of this activity to apportion blame or liability.

Investigation Process

This Investigation is limited to aspects related to the landing and taxiing of the Aircraft to its final parking position.

This Investigation is performed pursuant to the *UAE Federal Act No. 20 of 1991*, promulgating the *Civil Aviation Law, Chapter VII, Aircraft Accidents, Article 48*. It is in compliance with the *UAE Civil Aviation Regulations, Part VI, Chapter 3*, in conformity with *Annex 13 to the Convention on International Civil Aviation* and in adherence to the *Air Accidents and Incidents Investigation Manual*.

The occurrence involved an Airbus A330-243 passenger transport Aircraft, registration A6-EKR, and was notified to the General Civil Aviation Authority (GCAA) by phone call to the Duty Investigator (DI) Hotline Number +971 50 641 4667.

After the Initial Investigation, the occurrence was re-classified and upgraded accordingly from serious incident level to accident[1] level in accordance with ICAO Annex 13 accident definition due to the involved Cabin Crewmember being seriously injured and admitted to the hospital on 23 October 2014 and discharged from the hospital on 26 October 2014.

In accordance with the Standard Practice of Annex 13 to the Convention on the International Civil Aviation, the United Arab Emirates (UAE) being the State of Occurrence formed an Investigation Team. The International Civil Aviation Organization (ICAO) and the State of Design and Manufacture (France BEA) were notified in line with the ICAO Annex 13 obligations.

The BEA assigned an Accredited Representative to the Investigation. The United Arab Emirates (UAE) Air Accident Investigation Sector (AAIS) of the GCAA is leading the Investigation.

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[1] *Annex 13*
Accident. An occurrence associated with the operation of an aircraft which, in the case of a manned aircraft, takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, or in the case of an unmanned aircraft, takes place between the time the aircraft is ready to move with the purpose of flight until such time as it comes to rest at the end of the flight and the primary propulsion system is shut down, in which:
a) A person is fatally or **seriously injured** as a result of:
— being in the aircraft, or
— direct contact with any part of the aircraft, including parts which have become detached from the aircraft, or
— direct exposure to jet blast, *except* when the injuries are from natural causes, self-inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew; or…… .

Serious injury. An injury which is sustained by a person in an accident and which:
a) Requires hospitalization for more than 48 hours, commencing within seven days from the date the injury was received; or
b) Results in a fracture of any bone (except simple fractures of fingers, toes or nose); or…….

The scope of this Investigation is limited to the events leading up to the occurrence; no in-depth analyses of non-contributing factors were undertaken.

Notes:

1 Whenever the following words are mentioned in this Report with the first letter Capitalized, it shall mean:

(Aircraft)	-	the aircraft involved in this Accident.
(Investigation)	-	the investigation into this Accident
(Accident)	-	this investigated Accident.
(Captain)	-	the commander of the Accident Aircraft
(Copilot)	-	the copilot of the Accident Aircraft
(Report)	-	this Accident Report.

2 Unless otherwise mentioned, all times in this Report are Coordinated Universal Time (UTC), (UAE Local Time minus 4).

3 Photos used in this Report are taken from different sources and are adjusted from the original for the sole purpose to improve clarity of the Report. Modifications to images used in this Report are limited to cropping, magnification, file compression, or enhancement of color, brightness, contrast or insertion of text boxes, arrows or lines.

Synopsis

On 23 October 2014, Emirates Airline flight number EK539, operated by an Airbus A330-243, registration A6-EKR, with 14 crewmembers (2 flight crew and 12 cabin crewmembers) and 274 passengers onboard, departed from Ahmedabad International Airport (VAAH), India, and landed at Dubai International Airport (OMDB), UAE, on runway 30L, at approximately 0156 UTC.

The flight was uneventful and the Captain was in control of the Aircraft during landing and taxiing, while the Copilot maintained communications with Dubai Air Traffic Control (ATC).

After landing, the Aircraft vacated runway 30L via taxiway Kilo 9 and then turned left onto taxiway Kilo. While the Aircraft was taxiing on taxiway Kilo, ATC instructed the crew to turn onto taxiway Juliet 3, then to turn left onto taxiway Zulu and park on parking bay Golf 2 (Figure 1).

After vacated the runway, both engines were running, while the Aircraft was taxiing until it reached taxiway Zulu, (Figure 1). The Aircraft made a series of sharp turns, including several 90° turns, before finally turning onto the parking bay.

When the Aircraft reached taxiway Zulu, the Captain requested that the No.2 engine be shut-down in accordance with SOPs and he continued taxiing using the No. 1 engine.

As the Aircraft taxied on taxiway Kilo, the Senior Cabin Crewmember (SCCM), left her designated jump seat (R4A), which was located next to the R4 door main jump seat (refer to figure 2), and moved towards the forward economy galley to perform her nominated duty as the L2 door checker. However, prior to approaching the L2 door, the SCCM walked directly to the business galley to retrieve her uniform hat, which was located in the coat closet stowage behind the R1 jump seat.

After the Aircraft had taxied on taxiway Zulu and its main landing gear (MLG) came abeam of the centreline of the designated parking bay (Golf 2), the Captain applied firm braking in order not to overshoot the final turn into the parking bay stand. The firm brake application caused a deceleration of 14 knots to 4 knots (kts) within 4 seconds.

When the brakes were applied the SCCM lost her balance and was thrown towards the forward section of the aircraft into the business galley, making contact with the galley worktop surface before falling onto the floor, sustaining serious injuries to her neck and back (Medical report).

The SCCM stated that, at the time of the brake application, she had reached the business galley, and she could not determine whether she was already stopped/standing or still walking towards the cupboard to retrieve her uniform hat from starboard coat closet, which was located behind the R1 jump seat when the incident occurred. But since she neither had her hat with her, nor anything to hold on to, she had not opened the cupboard when the brakes were applied.

The Air Accident Investigation determines that the cause of this Accident was the cabin crewmember left her jump seat before the final turn onto the parking stand, and before the Flight Crew announced: “Cabin Crew, Prepare all doors and cross check,”.

Three safety recommendations are included in this report, which are addressed to the Operator.

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1. Factual Information

1.1 History of the Flight

On 23 October 2014, Emirates Airline flight number EK539, operated by an Airbus A330-243, registration A6-EKR, with 14 crewmembers (2 flight crew and 12 cabin crewmembers) and 274 passengers onboard, departed from Ahmedabad International Airport (VAAH), India, and landed at Dubai International Airport (OMDB), UAE, on runway 30L, at approximately 0156 UTC.

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After vacated the runway, both engines were running, while the Aircraft was taxiing until it reached taxiway Zulu, (Figure 1). The Aircraft made a series of sharp turns, including several 90° turns, before finally turning onto the parking bay,

When the Aircraft reached taxiway Zulu, the Captain requested that the No.2 engine be shut-down in accordance with SOPs and he continued taxiing using the No. 1 engine.

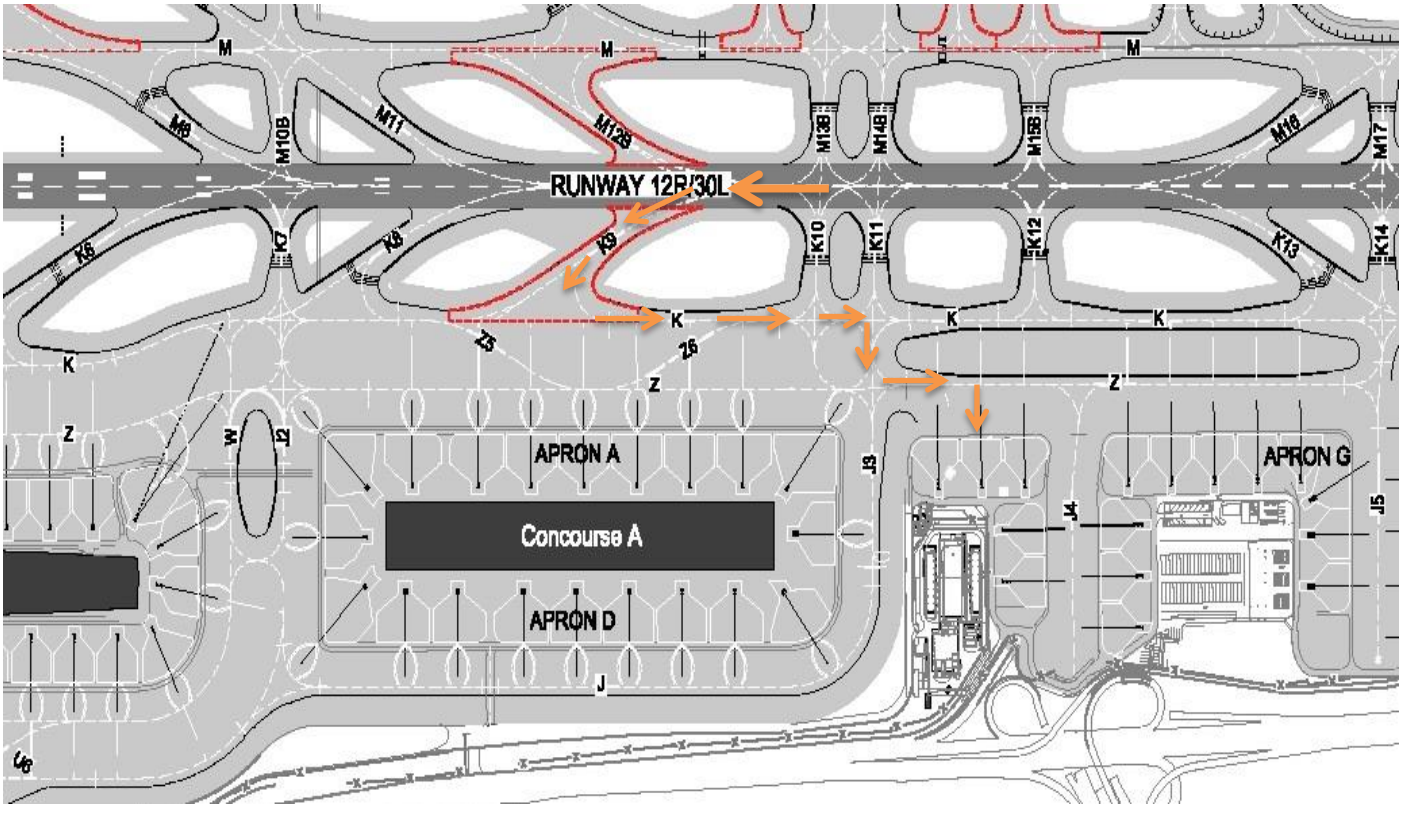

Figure 2. Taxi route of the Aircraft

As the Aircraft taxied on taxiway Kilo, the Senior Cabin Crewmember (SCCM), left her designated jump seat (R4A), which was located next to the R4 door main jump seat (refer to figure 2), and moved towards the forward economy galley to perform her nominated duty as the L2 door checker. However, prior to approaching the L2 door, the SCCM walked directly to the business class galley to retrieve her uniform hat, which was located in the coat closet stowage behind the R1 jump seat.

During the time taken by the SCCM to reach the forward cabin, the Aircraft had reached taxiway Zulu, (Figure 1).

After the Aircraft had taxied on taxiway Zulu and its main landing gear (MLG) came abeam of the centreline of the designated parking bay (Golf 2), the Captain applied firm braking in order not to overshoot the final turn into the parking bay stand. The firm brake application caused a deceleration from 14 knots to 4 knots (kts) within 4 seconds[2].

The SCCM stated that, at the time of the brake application, she had reached the business class galley, and she could not determine whether she was already stopped/standing or still walking towards the cupboard to retrieve her uniform hat from the starboard coat closet, which was located behind the R1 jump seat when the incident occurred. But, since she neither had her hat with her, nor anything to hold on to, she had not opened the cupboard when the brakes were applied.

When the brakes were applied the SCCM lost her balance and was thrown towards the forward section of the aircraft into the business class galley, making contact with the galley worktop surface before falling onto the floor, sustaining serious injuries[3] to her neck and back.

The distance that the cabin crewmember had walked from her jump seat to the location where she had lost her balance before falling was 39.62 meters (figure 2).

[2] Reference: QAR data

[3] ***Serious injury:***
An injury which is sustained by a person in an accident and which:
a) requires hospitalization for more than 48 hours, commencing within seven days from the date the injury was received; or
b) Results in a fracture of any bone (except simple fractures of fingers, toes or nose); or ……..

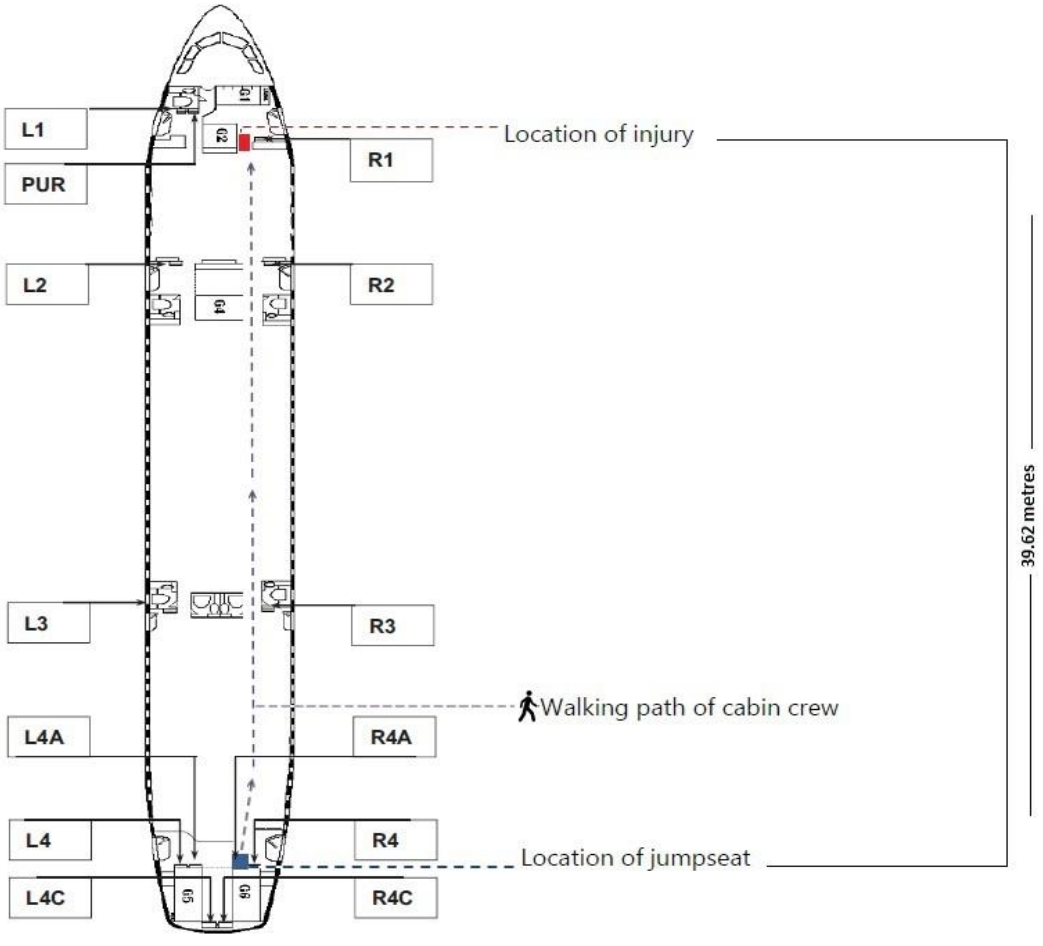

Figure 2. Aircraft configuration/injured cabin crewmember seat/workstations

1.2 Injuries to Persons

One senior cabin crewmember sustained a serious injury in this Accident. She complained of neck pain and vomiting twice following the event. X-Rays and a C-T scan check showed anterior body fracture of C3, spiral cord intact. She was admitted for consultation management and required hospitalization from 23 October 2014 until 26 October 2014.

Table 1. Injuries to persons

injuries	Flight Crew	Cabin Crew	Other Crew on Board	passengers	Total on board	others
Fatal	0	0	0	0	0	0
Serious	0	1	0	0	1	0
Minor	0	0	0	0	0	0
None	2	11	0	274	287	0
Total	2	12	0	274	288	0

1.3 Damage to Aircraft

There was no damage to the Aircraft.

1.4 Other Damage

There was no damage to property and/or the environment.

1.5 Personnel Information

1.5.1 Captain and Copilot

The flight crew were appropriately licensed and qualified to operate the flight.

Table 2. Crew information

Crew Member	Captain	Copilot
Age	46 years	33 years
Female	Male	Male
Date joining the operator	19 April 2006	28 October 2007
Type of license	ATPL	CPL
Valid to	15 October 2019	28 February 2020
Rating	M/E A330, A340	M/E LAND; INSTRUMENT; A330
Issuing State	UAE	UAE
Medical class	Class one	Class one
Valid to	31 January 2015	30 June 2015
Total flying time (hours)	5540:41	1372:32
Total on type (A330)	2776:57	1369:51
Total last 90 days	169:12	115:49
Total last 7 days	10:11	23:22
Total on type last 90 days	80:03	115:49
Total on type last 7 days	10:11	23:22
Total last 24 hours	10:11	5:50
Total on type last 24 hours	10:11	5:50
Last recurrent training	Last PPC was done on 15 Aug 2014	Last PPC was done on 20 Aug 2014
Last line check	Last recurrent line was done on 13 Sep 2014	Last recurrent line was done on 28 December 2013

1.5.2 Injured Cabin Crewmember

The injured Cabin Crewmember held an appropriate valid GCAA licence and was type rated for the aircraft and operation and held a valid class-one medical certificate.

1.6 Aircraft Information

Table 3. Aircraft general data

Manufacturer	Airbus
Model	Airbus A330-243
MSN	251
Date of manufacture	10 June 2009
Nationality and registration mark	A6-EKR

Name of the owner	Emirates
Name of the operator	Emirates Airline

Certificate of Airworthiness

Number	EAL/31
Issue date	31 March 1999 (Original issue date)
Validity	30 March 2015 as per CAMO/007/12

Certificate of Registration

Number:	02/99
Issue date:	31 March 1999
Valid to:	N/A

1.7 Meteorological Information

As per the weather report for OMDB for 23 October 2014, the prevailing meteorological conditions were not a factor in this occurrence, (Weather Report, appendix-1).

1.8 Aids of Navigation

None of the ground-based navigation aids, on-board navigation aids, aerodrome visual ground aids or their serviceability were a factor in this Incident.

1.9 Communications

The flight crew carried out normal radio communications with the relevant ATC units.

1.10 Aerodrome Information

Dubai International Airport, ICAO code OMDB, 25°15'10"N 55°21'52"E,, is located 4.6 kilometres east of Dubai, the UAE. The elevation is 62 ft.

The airport has two asphalt runways: 30R/12L and 30L/12R, with lengths of approximately 4,000 meters and 3,500 meters, respectively.

1.11 Flight Recorders

The aircraft was equipped with a flight data recorder (FDR) and a cockpit voice recorder (CVR); in accordance with GCAA CAR-Ops, the flight recorders were not required for the investigation. However, the QAR data was retrieved and utilized.

1.12 Wreckage and Impact information

The Aircraft was undamaged.

1.13 Medical and Pathological Information

No medical or pathological investigations were conducted as a result of this occurrence, nor were they required at the time of admission to hospital of the injured crewmember.

1.14 Fire

There was no fire.

1.15 Survival Aspects

The injured cabin crewmember was transported to Dubai Airport Medical Centre, to receive first aid treatment.

The cabin crewmember was then admitted to the hospital and remained in the hospital from 23 October until 26 October 2014.

1.16 Tests and Research

No tests or research were required to be conducted as a result of this Accident.

1.17 Organizational and Management Information

1.17.1 General structure

The airline is a subsidiary of The Emirates Group, which is wholly owned by the government of Dubai's Investment Corporation of Dubai.

1.17.2 Fleet size

Emirates Airline operates a fleet of 241 aircraft, (passenger and freighter). 1 A319, 18 A330 200, 4 A340-300, 1 A340-500, 67 A380 800, 12 B777-300, 107 B777 300 ER, 6 B777 200 ER, 10 B777 200 LR, 13 B777F and 2 B747-400 (Freighter).

1.18 Additional Information

1.18.1 Female Cabin Crewmembers Uniform Shoes:

Referring to appendix 1, Reference Material – Extracts from the Image and Uniform Standards Manual, Appendix 3 in this report, the operator's policy stated that, the standard issue court shoes (high/medium heels) must be worn by CCMs during passenger boarding, disembarkation and at all other times, except inflight. After take-off female cabin crew wear their cabin shoes, which have a smaller heel.

There are three different types (figure 3), Wedge style – 1.7 inches (4.5cm), Flat style 1 – 1.5 inches (3.5cm), flat style 2 – 1 inch (2.5cm)for the inflight service.

Female Cabin Shoe Options (Flatter Heeled Shoes)

Wedge style height: 4.5cm (1.7 inches)	Flat style 1 height : 3.5cm (1.5 inches)	Flat style 2 height: 2.5cm (1 inch)

Figure 3. Flatter heeled shoes

Female Uniform Court Shoe Options (High Heeled Shoes)

At the time of the event the cabin crewmember was wearing the medium heeled shoes (figure 4).

High Heel height:
7.5cm (3 inches)

Heel height
7.5cm (3 inches)

Medium heel height
4.5cm (1.8 inches)

Figure 4. Cabin crew shoes style

1.18.2 Cabin Crewmembers Standard Procedures

The injured SCCM was assigned to the R1A position, acting as a door checker for the L2 door operator.

On this aircraft, for take-off and landing, the designated jump seat for the R1A position is R4A, which is an additional jump seat located at the aft of the aircraft, adjacent to the R4 door main jump seat.

The injured SCCM, who was allocated the R4A jump seat in the aft of the aircraft, was walked towards the R1A position during taxi in to perform her nominated duty as a door checker, which is required during the door opening process as per the SOP:

> "**3.5.4.1 Door Checker**
>
> Two Cabin Crew must be present when opening cabin doors during normal operations. One shall be the **"Door Operator"**, the other will act as a **"Door Checker"** who must be a:
>
> - Purser.
> - Senior Flight Steward/stewardess.
> - FG1 Cabin Crew.
> - Performance Standards Purser (PSP)."

Prior to reaching the L2 door, the cabin crewmember walked past the R2 door and into the business class galley to retrieve her uniform hat from the R1 coat closet.

1.18.3 Cabin crew safety-related duties after Landing

Paragraph 3.2- Cabin Crew Safety-related Duties after Landing Checklist, of the Operation Manual contained the following:

> **"3.2.7 Cabin Crew Safety-related Duties after Landing**

- Remain seated until the seat belt sign is switched off unless it is necessary to perform a safety related duty.
- Cabin Crew will perform the landing PA when the aircraft has left the active runway.
- After the final turn on to the parking stand, the Flight Deck crew will announce:

  "Cabin Crew, Prepare all doors and cross check."
- Perform the Door Disarming procedure and physically cross check with the opposite door.

3.5.3.2 Disarming and Opening Aircraft Doors

After the final turn on to the parking stand, the Flight Crew will give the command through the PA system to disarm the doors.

Flight Crew PA "Cabin Crew, prepare all doors and cross-check."

After engines have been shut down both pilots, will cross-check the door status to ensure all doors are indicated to be disarmed. The Captain will then turn the seat belt sign off; this will be the cue for the Purser to order the opening of cabin doors. Cabin doors, must not be opened until the seat belt signs have been switched off.

1.18.4 Action taken

Prior to this Accident the operator amended the SOP and a new door checker procedure was published on16 October 2014, effective 1st November 2014 (Refer to Air Crew Instruction – ACI 2014-021), which mitigates the risk inherent in walking long distances in the cabin while the aircraft is taxiing. However, the Accident occurred one week before the effective introduction date of the new SOP.

Therefore, according to the new SOP, the need for a SCCM allocated an 'A' position to walk from their jump seat if located at the aft of the aircraft was no longer required.

1.19 Useful or Effective Investigation Techniques

No new investigation techniques were used during this Investigation.

2. Analysis

2.1 Taxiing the Aircraft

When the Aircraft reached taxiway Zulu, the captain requested that the No. 2 engine be shut-down in accordance with SOPs and continued taxiing using the No. 1 engine.

Whilst the flight crew were conducting the engine shutdown procedure and while completing the checklist, the aircraft main landing gear came abeam of the centreline of parking bay Golf 2 when the final turn onto the stand was required.

The captain applied firm braking in order to avoid overshooting the parking bay stand. This led to a deceleration of the aircraft from 14 knots to 4 knots within four seconds[4].

The distance from the point where No. 2 engine was shut down, and the point where the final turn towards the parking bay (Golf 2) had started was calculated as follows:

From the QAR data:

	Time	Lat/Long
No 2 engine shutdown at	1:59:20	25:24:18/55:37:88
Pilot starts to apply brake	1:59:23	25:24:18/55:37:90
Max brake pressure applied	1:59:26	25:24:16/55:37:92
Start final turn onto stand	1:59:31	25:24:16/55:37:92

The ground speed was constant from 1:59:20 up until 1:59:25 and was equal to 14 knots during 5 seconds(s).

We can consider *V0 = 10 and V = 0*

10 knots, [kn] =5.1444 m/s

S1=5.1444*5=25.7

Ground speed started to decelerate at 1:59:26 from (V0) 14 to (V) 4 knots at 1:59:31

Vt= V0+at

a=dv/dt accordingly, *V=∫adt*, and *=ds/dt,* and *S=∫Vdt.*

When speed constant (S1) = *V*t* = 5.1444*5= 25.7

The distance from starting to touch the brake (S2):

S2=*∫vdt, between V0=4, V=14,* (we can use V0= 0, V=10, instead of V0=4, V=14)

S2=$V0 + \frac{1}{2}at^2 = \frac{1}{2}at^2 = \frac{1}{2}(-2.5) * (4^2) = 20.57$

S=S1+S2=25.72+20.57=46.29 meter.

[4] Reference: QAR

Using the google map, the distance from the point where No. 2 engine was shut down, and the point where the final turn onto the parking bay (Golf 2) begins is also approximately the same distance, from calculation.

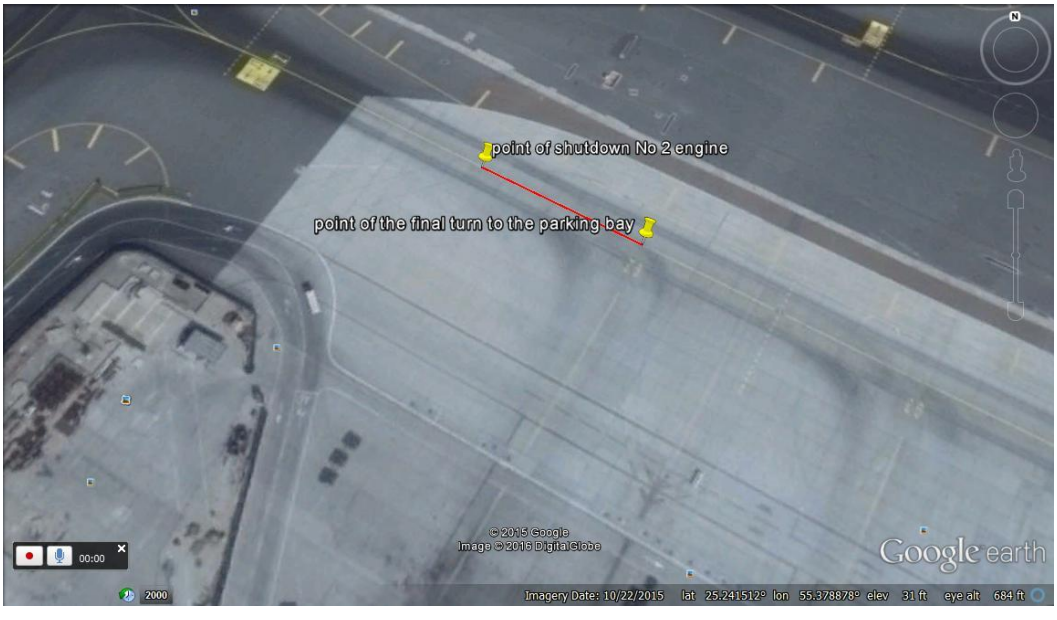

Figure 5. Dubai International Airport [Source: Google earth]

The time taken by the aircraft to travel this distance was sufficient to complete the engine shutdown procedure. However, the transition from completing the checklist and commencing to turn the aircraft turn was short and this required the captain to apply firm braking to make the final turn. The flight crew's situational awareness of the turn onto the Golf 2 bay may have been compromised by the time constraint imposed by the short taxi distance, the speed of the aircraft and carrying out the engine shutdown procedure.

Although, the application of the braking caused the SCCM to lose her balance and fall, the investigation believes that, the firm braking may be considered as a contributing factor, and not the direct cause of this event, and the Accident most likely would not have happened had the SCCM stayed seated until the aircraft completed the final turned onto the parking bay.

2.2 Crewmembers' Safety

As stated in paragraph 3.2.7 of the Operator's Cabin Manual paragraph:

3.2.7 Cabin Crew Safety-related Duties after Landing

- Remain seated until the seat belt sign is switched off unless it is necessary to perform a safety related duty.
- Cabin Crew will perform the landing PA once the aircraft has left the active runway.
- After the final turn on to the parking stand, the Flight Crew will announce:

"Cabin Crew, Prepare all doors and cross check".

- Perform the Door Disarming procedure and physically cross check with the opposite door.

Note: A319 Perform the L1 and R1 doors Disarming procedure and physically cross check them.

- Purser to receive doors disarming checks. Check the FAP (where available) to verify all doors are disarmed.
- Ensure passengers remain seated until **"Fasten Seat Belt"** sign is switched **OFF**.
- After Engines are shut down, **BOTH** pilots will cross check the **"Doors Page"** to ensure all doors are disarmed.
- The Captain will then turn **OFF** the Seat Belt signs.
- When the doors have been disarmed, physically cross checked and the

"Seat Belt" sign is switched off, the **Purser** will advise Cabin Crew over P.A.

"CLEAR TO OPEN DOORS".

- Cabin Crew in-charge of the doors to be opened, must wait for the ground staff to knock on the door prior to proceeding with the door opening.
- Cabin Crew to acknowledge the knock by signalling with a "thumbs up" through the door window.
- **Door operator must have a checker present prior to opening the cabin door.**

(Except A319 single crew operations).

- Purser to ensure cabin defects log is completed, documenting all reported cabin/equipment defects and signed by the Captain."

On this aircraft type, the jump seat for the business class SCCM is located next to the R4 door main jump seat. The SCCM is responsible for adopting the role of the door checker for the L2 door, prior to opening. At the time of the event, the SCCM was required to walk from their position at the aft of the aircraft during taxi in. This enabled them to reach the door prior to passengers leaving their seats and blocking the aisle, preventing access to the door.

The injured SCCM had left her seat before the final turn and moved from the aft economy galley towards the forward economy galley to perform the nominated duty of door checker for the L2 door while the Aircraft was taxiing. The crewmember carried out this action to ensure that she would be able to reach the L2 door while the aisles were still clear of passengers. Had the SCCM not left her seat it is likely that she would not have been able to assume her safety function at the L2 door. However, prior to reaching the L2 door, the cabin crewmember walked past the R2 door, into the business class galley, to retrieve her uniform hat from the R1 station coat closet stowage.

The practice of cabin crewmembers leaving their seats during taxi, to reposition at their assigned doors, before the final turn onto the parking stand, and before the Flight Crew announce:

"Cabin Crew, Prepare all doors and cross check", was an established cabin crew action which was not in accordance with the operators SOPs, or cabin manuals.

2.3 Operator Procedure Manual Amendment

Prior to the Accident, the operator revised the procedures and an amended door checker SOP was to be effective from 1st November 2014 (Refer to Air Crew Instruction – ACI 2014-021), which eliminated the risk of walking long distances in the cabin while the aircraft is moving.

2.4 Female Cabin Crewmembers Uniform Shoes:

There are three different heights of female high heeled (court) shoes. The injured crewmember was wearing the medium heeled height, which is 1.8 inches.

The Investigation could not determine whether this style of shoe affected the crewmember's balance or not, when the Aircraft brakes were applied firmly.

However, the practice of female cabin crew changing from their high heeled/medium option shoes to their cabin shoes once released after take-off and then again, from their cabin shoes to their high heeled/medium option shoes prior to descent/landing became an accepted procedure.

With this accepted practice of shoe changing, the operator did not risk assess and provide mitigating advisory actions concerning CCMs walking through the aircraft cabin during taxi, while wearing high heeled/medium shoes.

2.5 Flight Crew Operating Manual Procedures, Applicable to A330-243

The Operator's Flight Crew Operating Manual procedure, PRO-SUP-93-20 – One Engine Taxi, applicable to the Airbus A330-243 aircraft included that, at the arrival stage, the flight crew shall use the following procedure for taxiing in:

- APU start
- No less than 1 minute after high thrust operations, and when the APU indicates AVAIL during taxiing straight
- No. 2 engine shutdown.

It is noted that, during engine shutdown, a slight jerk forward may occur, if the flight crew applied the brakes during aircraft movement.

The investigation believes that the firm braking action which was applied did not affect the safety of people onboard, since everybody was secured and seated until the final turn onto the parking stand.

3. Conclusions

3.1 General

From the evidence available, the following findings, causes and contributing factors were made with respect to this Incident. These shall not be read as apportioning blame or liability to any particular organization or individual.

To serve the objective of this Investigation, the following sections are included in the conclusions heading:

- **Findings-** are statements of all significant conditions, events or circumstances in this Accident. The findings are significant steps in this Accident sequence but they are not always causal or indicate deficiencies.
- **Causes-** are actions, omissions, events, conditions, or a combination thereof, which led to this Accident.
- **Contributing factors-** are actions, omissions, events, conditions, or a combination thereof, which, if eliminated, avoided or absent, would have reduced the probability of this Accident occurring, or mitigated the severity of the consequences of the Incident. The identification of contributing factors does not imply the assignment of fault or the determination of administrative, civil or criminal liability.

3.2 Findings:

3.2.1 The Aircraft was certified, equipped, and maintained in accordance with the existing requirements of the UAE, General Civil Aviation Authority.

3.2.2 The Aircraft was airworthy when dispatched for the Accident flight.

3.2.3 The flight crewmembers were licensed and qualified for the flight in accordance with the existing requirements of the UAE, General Civil Aviation Authority.

3.2.4 The cabin crewmembers were licensed and qualified for the flight, in accordance with the existing requirements of the UAE, General Civil Aviation Authority.

3.2.5 The seated position for takeoff and landing of the injured cabin crewmember was 39.62 meters from where she lost her balance.

3.2.6 The cabin crewmember was wearing the medium heel height shoes.

3.2.7 The injured cabin crewmember moved from her seat while the Aircraft was taxiing before the final turn onto the parking stand, and the Flight Crew announced:
“Cabin Crew, Prepare all doors and cross check”.

3.3 Causes

The Air Accident Investigation Sector determines that the cause of this Accident was:

The cabin crewmember left her jump seat before the final turn onto the parking stand, and before the Flight Crew announced: “Cabin Crew, Prepare all doors and cross check”.

3.4 Contributing Factors

The Air Accident Investigation Sector determines that contributing factors to this Accident were:

The sudden firm braking action causing the cabin crewmember to lose her balance and fall.

4. Safety Recommendations

4.1 General

The safety recommendations listed in this Report are proposed according to paragraph 6.8 of *Annex 13 to the Convention on International Civil Aviation* and are based on the conclusions listed in heading 3 of this Report, the AAIS expects that all safety issues identified by the Investigation are addressed by the receiving States and organizations.

4.2 Final Report Safety Recommendations

The Air Accident Investigation Sector recommends that:

4.2.1 Emirates Airline, to-

SR19/2016

Assess the risk to female cabin crewmembers of wearing high/medium heeled shoes during the critical phases of the flight (taxi, take-off, climb, descent and landing).

SR20/2016

To eliminate the risk of cabin crewmembers walking long distances during taxi, consideration should be given to monitoring the revised door checker SOP that was published on the 16 October 2014 for consistent application.

SR21/2016

Consider monitoring the existing procedure of cabin crew leaving their jump seats to disarm their door before the final turn and upon the flight crew PA for consistent application.

This Report is issued by:

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Appendix 1. Weather Report

With reference to your request for met data for OMDB on the 23rd October 2014 between 01:00 UTC and 08:00 UTC we submit the following reports:-

DUBAI INTERNATIONAL METAR :

MET Report: METAR OMDB 230100Z 17005KT CAVOK 27/21 Q1013 NOSIG
MET Report: METAR OMDB 230130Z 19007KT CAVOK 27/21 Q1013 NOSIG
MET Report: METAR OMDB 230200Z 21005KT 170V230 CAVOK 27/20 Q1013 NOSIG
MET Report: METAR OMDB 230230Z 22007KT 160V230 CAVOK 27/21 Q1014 NOSIG
MET Report: METAR OMDB 230300Z 22006KT 200V260 9999 FEW040 28/21 Q1014 NOSIG
MET Report: METAR OMDB 230330Z 20005KT 150V290 9999 FEW040 30/21 Q1014 NOSIG
MET Report: METAR OMDB 230400Z VRB04KT 9999 SCT040 31/21 Q1015 NOSIG
MET Report: METAR OMDB 230430Z 31009KT 260V340 9999 SCT040 31/20 Q1015 NOSIG
MET Report: METAR OMDB 230500Z 30008KT 270V340 9999 SCT040 31/21 Q1016 NOSIG
MET Report: METAR OMDB 230530Z 31008KT 260V010 9999 FEW040 31/20 Q1016 NOSIG
MET Report: METAR OMDB 230600Z 28009KT 250V350 9999 FEW040 31/19 Q1016 NOSIG
MET Report: METAR OMDB 230630Z 30011KT 9999 FEW040 31/20 Q1015 NOSIG
MET Report: METAR OMDB 230700Z 29011KT 260V340 9999 FEW040 31/19 Q1015 NOSIG

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DANS

serco
Meteorological Services

MET Report: METAR OMDB 230730Z 26010KT 200V310 9999 FEW040 31/19 Q1015 NOSIG
MET Report: METAR OMDB 230800Z 27013KT 9999 FEW040 31/20 Q1014 NOSIG

Appendix 2. *Image and Uniform Standards Manual*

Personnel photos have been removed from the document for personnel privacy.

APPENDIX 1 Reference Material - Extracts from the Image and Uniform Standards Manual
Department: Cabin Safety

Taking Centre Stage – Image and Uniform Standards Manual (female shoe policy) - Page 17, 21 and 25

Boarding - female

Hat and scarf
- Your hat and scarf must be worn during boarding

Jacket
- Your jacket must be worn fully buttoned
- Do not overfill your jacket pockets
- Items placed in the pocket must not be visible

Blouse
- All the buttons of your blouse must be fastened
- Your blouse must be tucked into the waistband of your skirt or trousers
- Your undergarments must be of a plain design and not visible through the blouse
- You may wear a singlet or vest, if required

Skirt
- Your skirt must sit on your waist and the hemline must fall one inch below your knee
- Your skirt must not be form fitting and the outline of your undergarments must not be visible

Trousers (CSA'S / Medical))
- Your trousers should rest on the midrise of your foot and not touch the floor
- Your trousers must not be form fitting and the outline of your undergarments must not be visible

Court shoes (high/medium heels)
- The standard issued court shoes must be worn for boarding, disembarking and at all other times, except during the flight

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After take-off

A uniform is much more than a garment you are required to wear on duty. Each part of your uniform plays a specific role and during this phase of your journey, it is your waistcoat and cabin shoes (females).

Preparing for service
- Change into your service attire out of the view of the customers
- Remove ID card and store safely
- Wear your cabin shoes when you are cleared for service (females)

Waistcoat
- Wear your waistcoat fully buttoned
- One pen and small notepad can be placed in the pocket of the waistcoat
- Do not overfill your pockets

You must maintain your appearance throughout the flight.

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Pre-landing

Maintaining your professional look after a flight conveys a positive and professional impression to customers. It is important that you look fresh and smart at the end of your flight.

Prior to commencing your pre-landing duties:

- Remove your waistcoat
- You can wear your jacket at this point but ensure it is consistent in that cabin
- Ensure that your blouse or shirt is neatly tucked inside your skirt or trousers
- Female crew must change into court shoes (high heels)
- Wear and display your ID card
- Jackets must be worn for landing into all destinations

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