

**Final Investigation Report on Serious  
Incident between M/s Inter-globe A320  
aircraft VT-IEM and M/s Silk Air B737  
aircraft 9VMGH at Kolkata on 11.12.2016**

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## **Foreword**

*In accordance with Annex 13 to the Convention on International Civil Aviation Organization (ICAO) and Rule 3 of Aircraft (Investigation of Accidents and Incidents), Rules 2012, the sole objective of the investigation of an accident shall be the prevention of accidents and not apportion blame or liability.*

*This document has been prepared based upon the evidences collected during the investigation, opinion obtained from the experts and laboratory examination of various components. Consequently, the use of this report for any purpose other than for the prevention of future accidents could lead to erroneous interpretations.*

## Glossary

AAI	Airports Authority of India
AAIB	Aircraft Accident Investigation Bureau, India
AOP	Air Operator Permit
ATC	Air Traffic Control
ATD	Actual Time of Departure
ATIS	Automatic Terminal Information Service
ATPL	Airline Transport Pilot Licence
AUW	All Up Weight
C of A	Certificate of Airworthiness
C of R	Certificate of Registration
CLD	Clearance Delivery Unit
COI	Committee of Inquiry
CPL	Commercial Pilot Licence
CVR	Cockpit Voice Recorder
NSCBI Airport	Netaji Subash Chander Bose International Airport
DGCA	Directorate General of Civil Aviation
DFDR	Digital Flight Data Recorder
DME	Distance Measuring Equipment
ETA	Expected time of Arrival
IACO	International Civil Aviation Organisation
IATA	International Air Transport Association
IFR	Instrument Flight Rule
ILS	Instrument Landing System
NM	Nautical Mile
PIC	Pilot In Command
Pax.	Passenger
<i>PANS-ATM</i>	Procedures for Air Navigation Services - Air Traffic Management
QFE	Query: Field Elevation
QNH	Query: Nautical Height
<i>R/T</i>	Radio Telephony
SMC	Surface Movement Control
SMGCS	Surface Movement Guidance and Control System
SOP	Standard Operating Procedures
VFR	Visual Flight Rule
VHF	Very High Frequency
VOR	Very High Frequency Omni Range
UTC	Co-ordinated Universal Time

<b><u>INDEX</u></b>		
<b><u>CONTENTS</u></b>		<b><u>PAGE No.</u></b>
	SYNOPSIS	02
<b>1</b>	<b>FACTUAL INFORMATION</b>	02
1.1	HISTORY OF THE FLIGHT	02
1.2	INJURIES TO PERSONS	04
1.3	DAMAGE TO AIRCRAFT	04
1.4	OTHER DAMAGE	04
1.5	PERSONNEL INFORMATION	04
1.6	AIRCRAFT INFORMATION	09
1.7	METEOROLOGICAL INFORMATION	12
1.8	AIDS TO NAVIGATION	12
1.9	COMMUNICATIONS	12
1.10	AERODROME INFORMATION	13
1.11	FLIGHT RECORDERS	13
1.12	WRECKAGE AND IMPACT INFORMATION	13
1.13	MEDICAL AND PATHOLOGICAL INFORMATION	13
1.14	FIRE	13
1.15	SURVIVAL ASPECTS	13
1.16	TESTS AND RESEARCH	14
1.17	ORGANISATIONAL& MANAGEMENT INFORMATION	14
1.18	ADDITIONAL INFORMATION	14
1.19	USEFUL AND EFFECTIVE TECHNIQUES	19
<b>2</b>	<b>ANALYSIS</b>	19

<b>3</b>	<b>CONCLUSIONS</b>	20
3.1	FINDINGS	20
3.2	PROBABLE CAUSE OF THE SERIOUS INCIDENT	21
3.3	CONTRIBUTORY FACTORS	21
<b>4</b>	<b>SAFETY RECOMMENDATIONS</b>	21
<b>5</b>	<b>APPENDICES</b>	NIL

## **Final Report on Serious Incident between M/s Inter-Globe Ltd A320-232 VT-IEM and M/s Silk Air B737-800 9VMGH at Kolkata Airport on 11.12.2016**

1. Aircraft  
Type : A320-232/ B737-800  
Nationality : Indian/Foreigner (Singapore)  
Registration : VT-IEM /9VMGH
2. Owner/ Operator : M/s Inter-globe/ M/s Silk Air
3. Pilot – in –Command : ALTP Holder for both M/s Inter-globe/ M/s Silk Air  
Extent of injuries : Nil
4. First Officer : CPL Holder (M/s Inter-globe)/ ALTP Holder (M/s Silk Air)  
Extent of injuries : Nil
5. Place of Incident : NSCBI Airport, Kolkata
6. Date & Time of Incident : 11<sup>th</sup> December 2016; 15:25 UTC
7. Last point of Departure : Singapore for M/s Silk Air & Kolkata for M/s Inter- globe
8. Point of intended landing : Kolkata for M/s Silk Air and Shamshabad for M/s Inter- globe
9. Type of operation : Schedule Operation for both M/s Inter-globe & M/s Silk Air
10. Crew on Board : 02+04 Crew (M/s Inter-globe) & 02+05 for M/s Silk Air  
Extent of injuries : Nil
11. Passengers on Board : 173 (M/s Inter-globe) & 151 (M/s Silk Air)  
Extent of injuries : Nil
12. Phase of operation : Landing for M/s Silk Air and take off for M/s Inter-globe
13. Type of Occurrence : Serious Incident (Air Proximity)

**(ALL TIMINGS IN THE REPORT ARE IN UTC)**

## **SYNOPSIS:**

On 11th December 2016, M/s Inter-globe IGO6619 aircraft A320-232 registration VT-IEM operating a schedule flight from Kolkata to Shamshabad (Hyderabad) departed RWY 19L at 1525 UTC, while the arrival Silk Air SLK488 aircraft B738-800 registration 9VMGH, operating a schedule flight from Singapore to Kolkata, commenced go around at the same time. This resulted in breach of standard separation. The IGO6119 was restricted climb to altitude 2000 feet and given a left heading of 090 degrees whereas SLK488 was instructed to expeditiously climb to 3000 feet and turn right heading 270 degrees. Both conflicting traffic were separated by allotting divergent headings. The lateral separation was reduced to 0.6 NM approximately and vertical separation was reduced to zero feet. There was no injury to any of the person on board on both the aircraft and there was no fire.

Ministry of Civil Aviation constituted a committee of inquiry vide Notification No. Av-15013/16/2016-DG to investigate the cause of the Serious Incident under Rule 11 (1) of Aircraft (Investigation of Accidents and Incidents), Rules 2012 comprising of Dr. Jitender Loura Assistant Director of Operations (AAIB) as Chairman, Shri Rajee Bhatnagar, Assistant Director of Airworthiness and Sh. Dinesh Kumar, Air safety Officer (AAIB) as members.

## **1. FACTUAL INFORMATION**

### **1.1 History of the flight**

On 11.12.2016, Silk Air SLK488 B737-800 aircraft registration 9VMGH was operating a schedule flight, from Singapore (WSSS) to Kolkata (VECC) under the command of a pilot an ATPL holder and qualified on type. The aircraft was cleared by Kolkata Approach for ILS approach 19L and changed over to Kolkata Tower at frequency 118.1 MHz. The weather at the time of approach at Kolkata was fine with visibility of 2200 meters and wind calm. Inter-globe IGO6619 A320-232 registration VT-IEM scheduled flight from Kolkata (VECC) to Shamshabad (VOHS) was given line up and backtrack runway 19L from taxiway "K" by the tower controller (full length departure) and Emirates UAE573 was given lineup Runway 19L from taxiway A (for intersection departure). The Tower Controller issued an immediate takeoff clearance to UAE573 thinking that the B777 will be able to takeoff in a very short time. UAE573 took a long time to start her take-off roll and the Tower controller, who was expediting two departures before arriving Silk Air aircraft, failed to visualize the dynamic situation which built up due to the late rolling of UAE573. The Silk Air aircraft was over the runway threshold when the second departure i.e. Inter-globe IGO6619 had just started her take-off

roll. The minimum lateral separation was reduced to 0.6 NM and minimum vertical separation was reduced to zero feet between the aircraft.

The replay of VHF 118.1 MHz (Tower Frequency), replay of radar data, ATC tape transcripts, DFDR/QAR data, the statement of controller& crew and Metar revealed that:

1. Silk Air, SLK488 was approximately 14NM from touchdown when Inter-globe IGO6619 was asked to enter Runway 19L from Taxiway K and back track runway 19L at 1520 UTC. At this time, another aircraft, UAE573 (B77W, VECC/OMDB), was on the runway wait to depart from an intermediate point of the runway.
2. Tower Controller confirmed if UAE573 was ready for immediate take-off. After getting confirmation, he asked UAE573 to line up runway 19L abeam “A” intersection at 1522 UTC. SLK488 was 9.5 NM from touchdown maintaining ground speed of 202 Knots and descending 2200 feet. Tower controller asked SLK488 to reduce to minimum approach speed at 1522 UTC and advised her of departure before her arrival.
3. After departure of UAE573 at 15:23:41 UTC Inter-globe IGO6119 was issued take-off clearance at 15:24 UTC. When UAE573 was rolling, SLK488 was about 06NM to touchdown maintaining 186 Knots and descending passing 1900 feet.
4. SLK488 was advised to expect landing clearance at about 02 NM at 1524 UTC.SLK488 was issued landing clearance at 1525 UTC but SLK488 advised that she was going around runway 19L. Inter-globe IGO6619 departed at 1525 UTC.
5. Tower controller after comprehending the developing situation, immediately advised SLK488 to expeditiously climb to 3000 feet. He also restricted climb of departing Inter-globe IGO6619 to 2000 feet.
6. Tower Controller then advised SLK488 to turn right heading 270 and IGO6619 to turn left heading 090 for early establishment of standard separation.
7. Essential traffic information regarding departing traffic Inter-globe IGO6619 was provided to SLK488.
8. The approach controller didn't monitor the speed of the arriving aircraft and the tower controller tried to apply speed control restrictions to the arriving Silk Air aircraft.
9. The Visibility was 2200 M at the time of incident.
10. The topography of the airport when runway-in-use is 19L, allows only one aircraft to hold at holding point RWY 19L at “K” and the second aircraft to wait at/abeam Taxiway “A” and



non- standard practices of allowing one aircraft backtrack Runway 19L and other aircraft to go for intersection departure under is prevalent.

## 1.2 Injuries to persons

INJURIES	CREW	PASSENGERS	OTHERS
FATAL	Nil	Nil	Nil
SERIOUS	Nil	Nil	Nil
MINOR/NONE	(02+04) Inter-globe (02+05) Silk Air	173 Inter-globe 151 Silk Air	Nil

## 1.3 Damage to aircraft Nil

## 1.4 Other damage Nil

## 1.5 Personnel information

### 1.5.1 Inter-globe (VTIEM)

#### 1.5.1.1 Pilot in command

Age	53Yrs 8 Months
License	FATA
Date of License Issue and Valid up to	29/09/2014 & up to 31/12/2017
Category	Aero plane
Class	Multi Engine Land
Endorsements as PIC	A320, Embraer-145, ATR-42, DASH-8, DHC-6
Date of Joining Company	29/09/2014
Date of Endorsement as PIC on type	31/12/2014
Instrument Rating	30/10/2016
Date of RTR Issue and Valid up to	02/06/2004 to 6/10/2028
Date of FRTOL issue & validity	12/05/2014 to 06/10/2028
Date of Med. Exam & validity	08/02/2017 to 07/08/2017
Date of Route Check	04/03/2017
Date of Last Proficiency Check	19/04/2017

Date of English language Proficiency & Valid up to	12/05/2014 to 06/10/2028
Date of last CRM	20/09/2016
Date of last Monsoon training	17/12/2014
Date of Dangerous Goods Awareness Training	23/09/2016
Date of last Refresher/Simulator	22/09/2016
Simulator Training for Critical Emergencies	Every 6 months with last IR/PPC on 19/04/2017.
Familiarity with Route/ Airport flown for last 12 months and since joining the company.	Captain is familiar for the route & flown multiple times on the route.
Total flying experience	13219:08 Hrs
Total Experience on type	3929:08 Hrs
Total Experience as PIC on type	2463:08 Hrs
Last flown on type	10/12/2016
Total flying experience during last 01 Year	566:09 Hrs
Total flying experience during last 180 days	308:40 Hrs
Total flying experience during last 90 days	128:50 Hrs
Total flying experience during last 30 days	86:44 Hrs
Total flying experience during last 07 Days	18:45 Hrs
Total flying experience during last 24 Hours	11:31 Hrs
Rest period before the flight	15:30 Hrs

### 1.5.1.2 Co-pilot

Age	28Yrs
License	CPL
Date of License Issue and Valid up to	04/05/2010 up to 04/05/2020
Category	Aero plane
Class	Multi Engine Land
Endorsements as PIC	Cessna 172 & BE 76
Date of Joining Company	04/09/2014
Date of Endorsement as PIC on type	N/A

Instrument Rating - (Renewal)	16/09/2016
Date of RTR Issue and Valid up to	27/11/2014 to 31/12/2068
Date of FRTOL issue & validity	04/05/2015 to 03/05/2020
Date of Med. Exam & validity	05/10/2016 to 04/10/2017
Date of Route Check	06/01/2017
Date of Last Proficiency Check	23/02/2017
Date of English language Proficiency & Valid up to	13/09/2012 up to 12/09/2018
Date of last CRM	02/08/2016
Date of last Monsoon training	--
Date of Dangerous Goods Awareness Training	26/08/2016
Date of last Refresher/Simulator	04/08/2016
Simulator Training for Critical Emergencies	Every 6 months, with last IR/PPC on 23/02/2017.
Familiarity with Route/Airport flown for last 12 months and since joining the company.	FO is familiar for the route & flown multiple times on mentioned route /airports.
Total flying experience	1479:34 Hrs
Total Experience on type	1384:22 Hrs
Total Experience as PIC on type	N/A
Last flown on type	10/12/2016
Total flying experience during last 01 Year	684:03 Hrs
Total flying experience during last 180 days	311:06 Hrs
Total flying experience during last 90 days	181:19 Hrs
Total flying experience during last 30 days	83:29 Hrs
Total flying experience during last 07 Days	19:28 Hrs
Total flying experience during last 24 Hours	11:31 Hrs
Rest period before the flight	15:30 Hrs

## 1.5.2 Silk Air (9VMGH)

### 1.5.2.1 Pilot in command

Age	35Yrs
License	CAAS ATPL
Date of License Issue and Valid up to	14/102014 and up to 30/06/2017
Category	ATPL (Aero plane)
Class	Class One Medical
Endorsements as PIC	B737-800 and A319/A320
Date of Joining Company	14/07/2014
Date of Endorsement as PIC on type	02/11/2015
Instrument Rating	22/09/2016 (Renewal)
Date of RTR Issue and Valid up to	14/10/2008 (Valid with Licence)
Date of FRTOL issue & validity	14/10/2008 (Valid with Licence)
Date of Med. Exam & validity	07/06/2016 tO 30/07/2017
Date of Route Check	10/11/2016 (Annual Line Check)
Date of Last Proficiency Check	22/09/2016
Date of English language Proficiency	14/10/2008- ICAO Level 6
Date of last CRM	04/04/2016
Date of last Monsoon training	N/A
Date of Dangerous Goods Awareness Training	14/03/2016
Date of last Refresher/Simulator	22/09/2016
Simulator Training for Critical Emergencies	22/09/2016
Familiarity with Route/ Airport flown for last 12 months and since joining the company.	Operated 9 times into VECC Recency into VECC : 2 Years and 1 day Route Recency : 10/11/2016
Total flying experience	7774:36 Hrs
Total Experience on type	830 Hrs
Total Experience as PIC on type	810:57 Hrs
Last flown on type	10/12/2016
Total flying experience during last 01 Year	764:41 Hrs

Total flying experience during last 180 days	384:33 Hrs
Total flying experience during last 90 days	187:06 Hrs
Total flying experience during last 30 days	51:12 Hrs
Total flying experience during last 07 Days	29:59 Hrs
Total flying experience during last 24 Hours	06:01 Hrs
Rest period before the flight	24:48 Hrs

### 1.5.2.2 Co-pilot

Age	31Yrs
License	ATPL
Date of License Issue and Valid up to	25/08/2015 up to 31/07/2017
Category	ATPL
Class	Class One
Endorsements as PIC	N/A
Date of Joining Company	13/01/2012
Date of Endorsement as PIC on type	N/A
Instrument Rating	07/11/2016
Date of RTR Issue and Valid up to	09/06/2011
Date of FRTOL issue & validity	29/06/2011
Date of Med. Exam & validity	01/07/2015
Date of Route Check	04/03/2016
Date of Last Proficiency Check	07/11/2016
Date of English language Proficiency	09/06/2011
Date of last CRM	16/07/2015
Date of last Monsoon training	N/A
Date of Dangerous Goods Awareness Training	15/12/2015
Date of last Refresher/Simulator	07/11/2016
Simulator Training for Critical Emergencies	07/11/2016
Familiarity with Route/ Airport flown for last 12 months and since joining the company.	26/11/2016

Total flying experience	3462:15 Hrs
Total Experience on type	2032:52 Hrs
Total Experience as PIC on type	1040:10 Hrs
Last flown on type	10/12/2016
Total flying experience during last 01 Year	795:32 Hrs
Total flying experience during last 180 days	379:37Hrs
Total flying experience during last 90 days	190:40 Hrs
Total flying experience during last 30 days	54:00 Hrs
Total flying experience during last 07 Days	21:02 Hrs
Total flying experience during last 24 Hours	02:45 Hrs
Rest period before the flight	22:05 Hrs

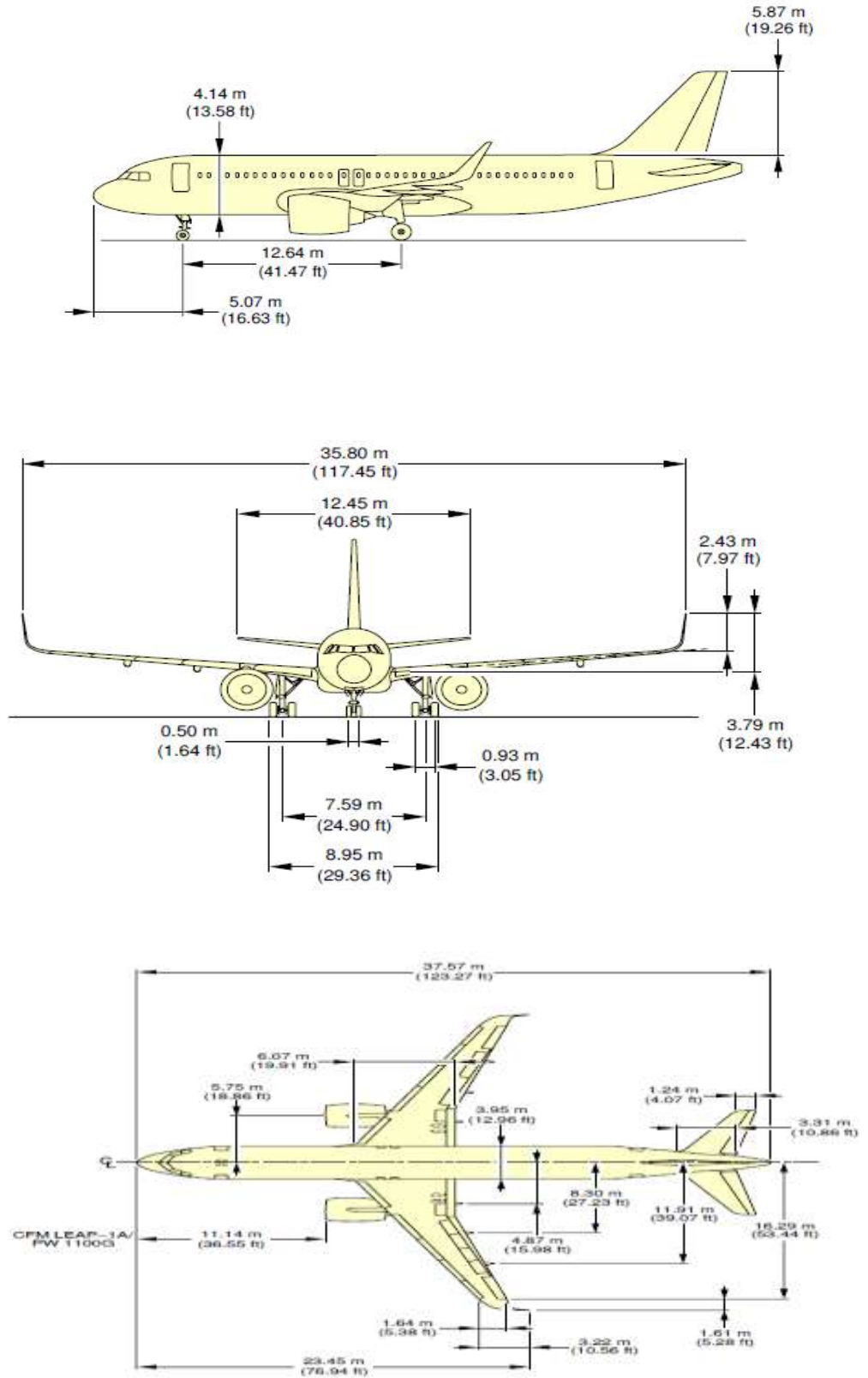
### 1.5.3 Tower Controller

Station	Unit	Date of Rating
NSCBI Airport	ADC/SMC/ASMGCS	December 2013
	ACC	January 2016
	OCC	September 2016

### 1.6 Aircraft information

#### 1.6.1 M/s Inter-globe: A320-232

The A320 is a subsonic, medium-range, civil transport aircraft. The aircraft has two high bypass turbofan engines manufactured by M/S CFM General. The aircraft is designed for operation with two pilots and has passenger seating capacity of 180 pax.



**Figure 1: An A320-232 aircraft**

The aircraft is certified in Normal (Passenger) category, for day and night operation under VFR & IFR. The maximum operating altitude is 39800 feet and the maximum Laden weight (MTOW) is 77000 Kgs. The Aircraft length is 37.57 meters, wingspan is 34.10 meters and height of this aircraft is 12.08 meters. The distance between main wheels is 8.95 meters. The distance between engines is 11.5 meters and Engine Ground Clearance is 0.85 meters.

Airbus A320-232 aircraft VT-IEM (MSN 4947) had been manufactured in year 2011. The aircraft is registered under Category 'A' and the Certificate of registration No. 4069. The Certificate of Airworthiness Number 6378 under "NORMAL category" subdivision Passenger / Mail / Goods was issued by DGCA. The specified minimum operating crew is two and the maximum all up weight is 77000 Kgs. At the time of incident the Certificate of Airworthiness was current.

The Aircraft was holding a valid Aero Mobile License No. A-002/052/-RL ONR at the time of serious incident. This aircraft was operated under Scheduled Operator's Permit No S-19 which was valid up to 02.08.2017. As on 11.12.2016 the aircraft's left and right engine's serial Number and hours/cycles logged on the day of serious incident i.e. 11.12.2016 are:

1. Engine number 1: Serial Number V15305 and 5442 hours and 4117 cycles.
2. Engine number 2: Serial number V16034 and 13532 hours and 6708 Cycles.

The Airbus A320 aircraft and its engines are being maintained as per the maintenance programme consisting of calendar period/ flying hours or cycles based maintenance as per maintenance programme approved by Regional Airworthiness office.

Accordingly, the last major inspection 2250FH/ 360 Days check carried out on 08.12.2016. Subsequently all lower inspections (Preflight checks, Service Checks, Weekly Checks) were carried out as and when due before the incident. The aircraft was last weighed on 25/07/2016 and the weight schedule was prepared and duly approved by the office of Director of Airworthiness, DGCA. Prior to the incident flight the weight and balance of the aircraft was well within the operating limits.

All the concerned Airworthiness Directive, mandatory Service Bulletins, DGCA Mandatory Modifications on this aircraft and its engine has been complied with as on date of serious incident.

### **1.6.2 M/s Silk Air: B737-800**

The Boeing 737-800 series is a sub-sonic, medium range civil transport aircraft. The aircraft is certified in Normal (Passenger) category, for day and night operation under VFR & IFR. The maximum operating altitude is 41000 feet and the maximum Laden weight (MTOW) is 79015 kg.



The Aircraft length is 39.5 meters, wingspan is 35.8 meters and height of this aircraft is 12.50 meters. The distance between main wheels is 5.71 meters. The distance between engines is 9.652 meters and Engine Ground Clearance is 0.48 meters.

Boeing 737-800 aircraft, registration 9VMGH (MSN 44224) had been manufactured in year 2014. The aircraft is registered with Civil Aviation Authority of Singapore (CAAS) and the Certificate of registration No.S.513.The Certificate of Airworthiness Number AWC.796 under Transport (Passenger) category was issued by CAAS and is valid till 03/11/2017. The specified minimum operating crew is two and the maximum all up weight is 79015 Kgs. At the time of incident the Certificate of Airworthiness was current.

The Aircraft was holding a valid Aero Mobile Licence No. AC114323 at the time of serious incident and valid till 31/08/2019. This Aircraft was operated under Scheduled Operator's Permit No AOC/3 which was valid up to 28.02.2017.The aircraft was last weighed on 22/09/2016. Prior to the incident flight, the weight and balance of the aircraft was well within the operating limits.

### **1.7 Meteorological information**

Information: F	Time of Observation: 15:00	UTC
Date: 11 <sup>th</sup> December, 2016	Wind: Calm	
Visibility: 2200 meters	Weather: HZ (Haze)	
Cloud: FEW 2000 FT (0600 MTS)	BKN 10000 FT (3000 MTS)	
Temperature: 20 ° C	Dew Point: 15 ° C	
QNH: 1011 hPa	QFE: 1011hPa	
Trend: NOSIG		

### **1.8 Aids to navigation**

All the aids to navigation including ILS Runway 19L and DVOR, CEA (frequency: 112.5 MHz. were reported working normal

### **1.9 Communications**

During the period of occurrence, the aircrafts, UAE573 (B77W), IGO6619 (A320-242) and SLK488 (B737-800) were in contact with ATC on Aerodrome Control Tower frequency 118.1 MHz and with Approach Radar at 127.9 MHz. There was always two way communications between the ATC and both aircraft.

### **1.10 Aerodrome information**

NSCBI airport, Kolkata (IATA: CCU, ICAO: VECC) is the primary international airport of the Eastern and North Eastern region of India and is operated by Airports authority of India, a Public Sector Undertaking of the Government of India. The elevation of the airport is 17.5 feet and it has two parallel runways i.e. runway 19L/01R (3627×45 M) and 19R (2839×45 m)/01L (3270×45m) The Navigation aids installed include ILS DME, DVOR and NDB with precision and non-precision approach procedures for Runways 19L/01R and 19R/01L.NSCBI Airport has Category 9 rescue and firefighting capabilities with all ARFF personnel trained in rescue and fire-fighting as well as medical first-aid. At the time of incident, Runway in use was 19L. The topography of the Kolkata Airport is such that when Runway 19L is in use, the operational constraints allows only one aircraft to hold at holding point RWY 19L at “K” and the second aircraft to wait at/abeam Taxiway “A” and non-standard practices of allowing one aircraft to backtrack the Runway 19L and other aircraft to go for intersection departure is quite prevalent.

### **1.11 Flight recorders**

The ATC tape transcript, SMGCS & Radar snapshots and DFDR/QAR data was analyzed for investigation purpose.

### **1.12 Wreckage and impact information**

There was no damage to either of the aircraft or to any ground facilities.

### **1.13 Medical and pathological Information**

The cockpit crew of both M/s Inter-globe and Silk Air had undergone pre-flight medical check prior to the flight and the same was found to be negative.

### **1.14 Fire**

There was no fire.

### **1.15 Survival aspects**

The incident was survivable.

## 1.16 Tests and research Nil

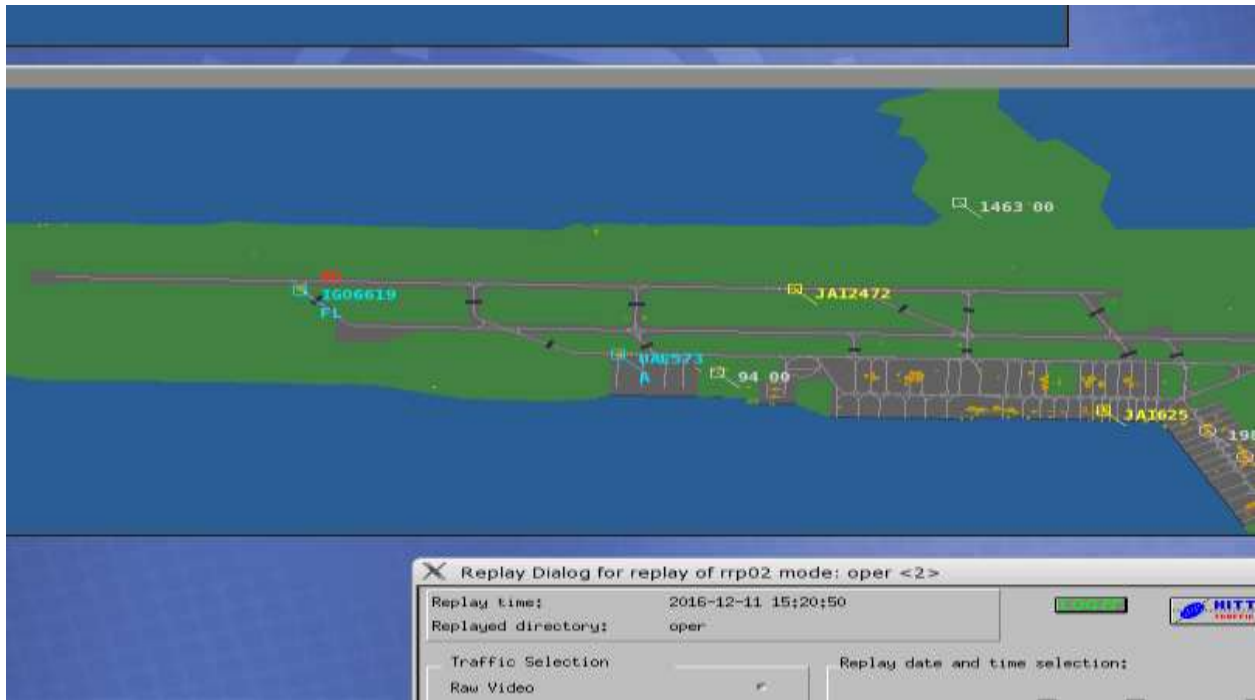
## 1.17 Organizational and management information

M/s Inter-globe is an Indian registered Schedule airline It operates scheduled flights to both domestic and international sectors. The Flight Safety Department is headed by Chief of Flight Safety approved by DGCA. M/s Inter-globe has a full established Operations training facility for the pilots. M/s Silk Air is a scheduled Air Operator of Singapore.

M/s Airports authority of India (AAI) is a public sector undertaking. AAI provides Air Navigation Services in air space measuring 2.8 million square nautical miles which cover entire Indian air space. The Air Traffic Services at NSCBI airport are provided by AAI which includes Area control Service, Approach Control Service and Aerodrome Control Tower.

## 1.18 Additional information

The sequence of event, as displayed over SMGCS in front of Tower Controller where in the details of UAE573, IGO6619 and SLK488 are clearly visible, is depicted below:



**Figure 2: At time 15:20:50, IGO6619 backtracking RWY 19L from TWY K and UAE573 on TWY A**

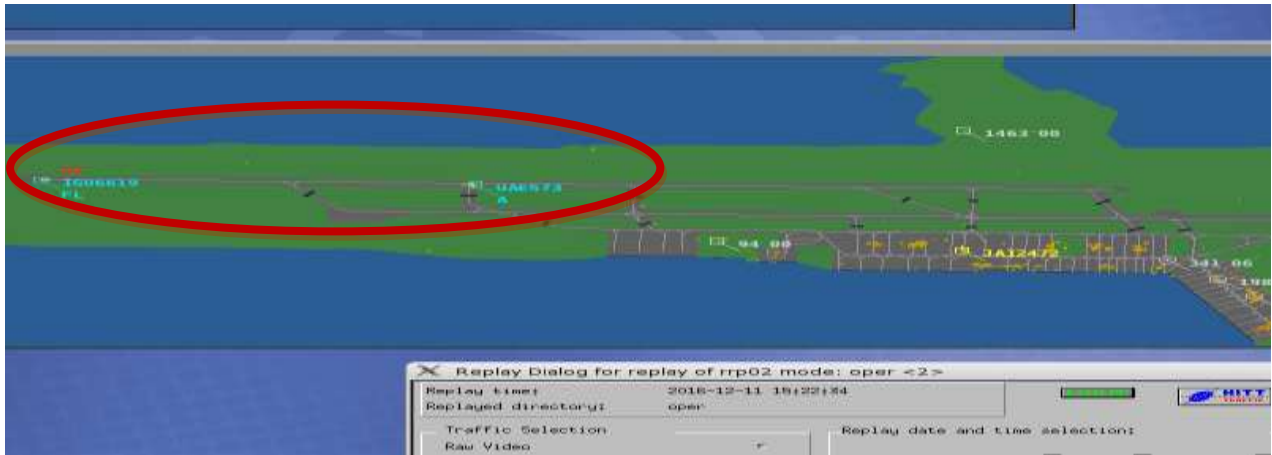


Figure 3: At time 15:22:34, both IGO6619 and UAE573 are lined up simultaneously on RWY 19L

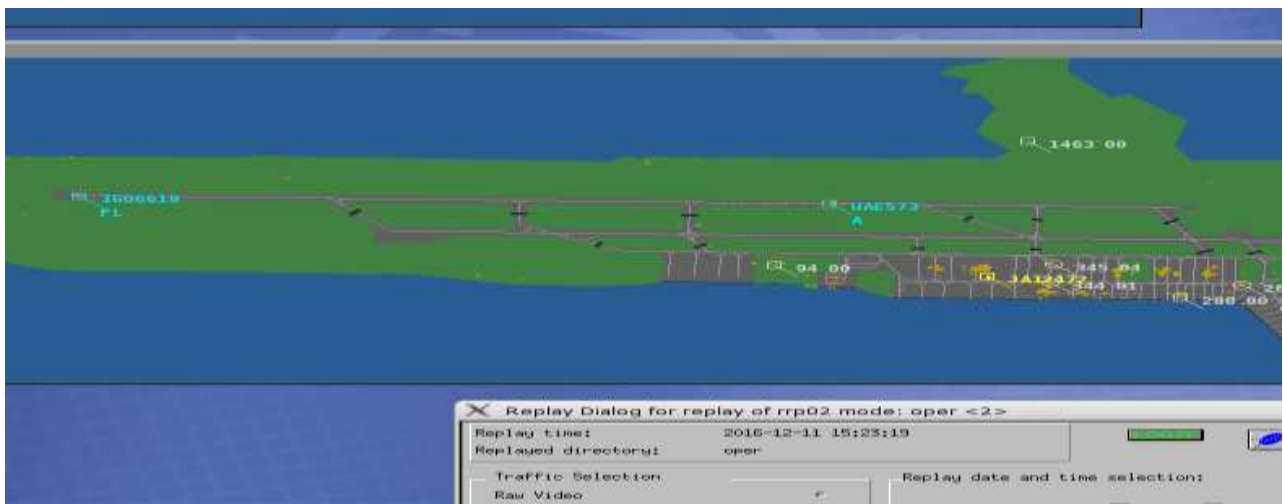


Figure 4: At time 15:23:19, IGO6619 lined up and UAE 573 rolling RWY 19L

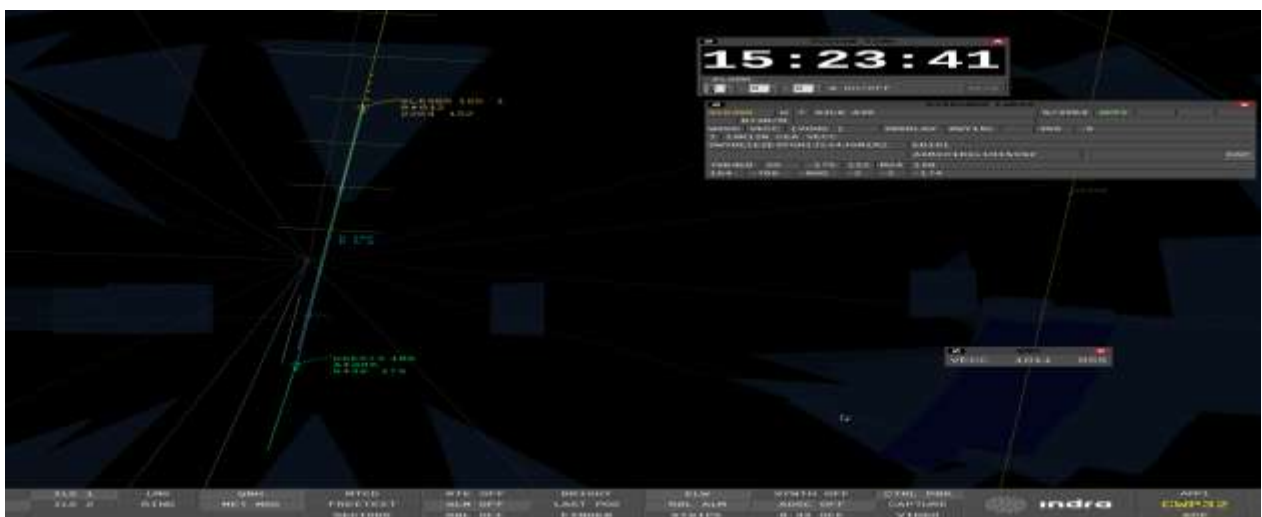


Figure 5: At time 15:23:41, UAE573 was airborne, passing 500feet, the arriving SLK488 was 3.7 NM

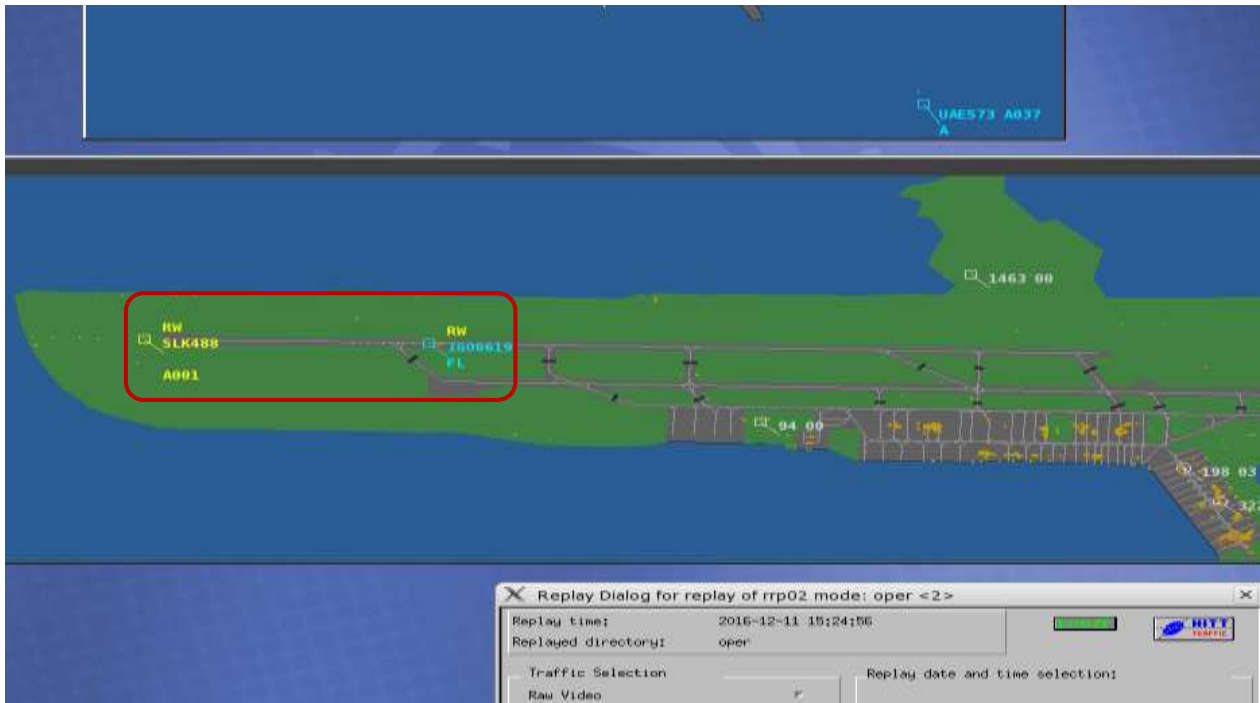


Figure 6: At time 15:24:56, SLK488 at threshold of RWY 19L and IGO6619 rolling position abeam Twy K

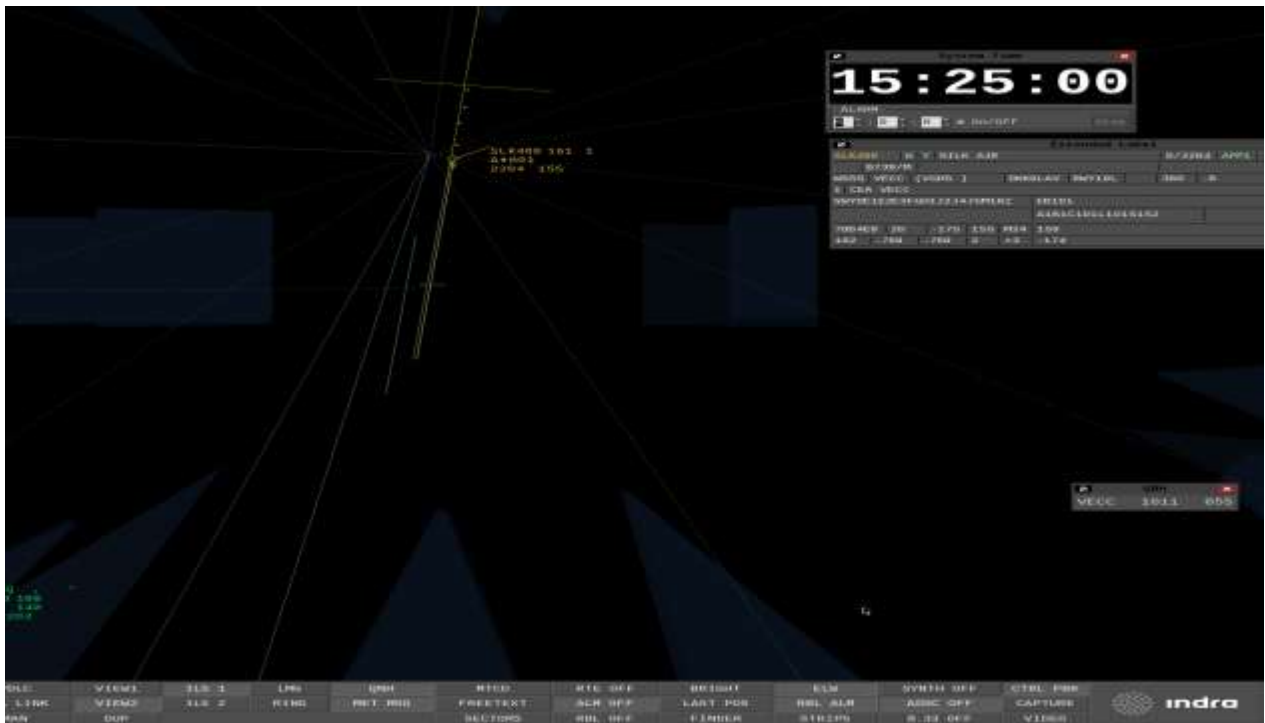
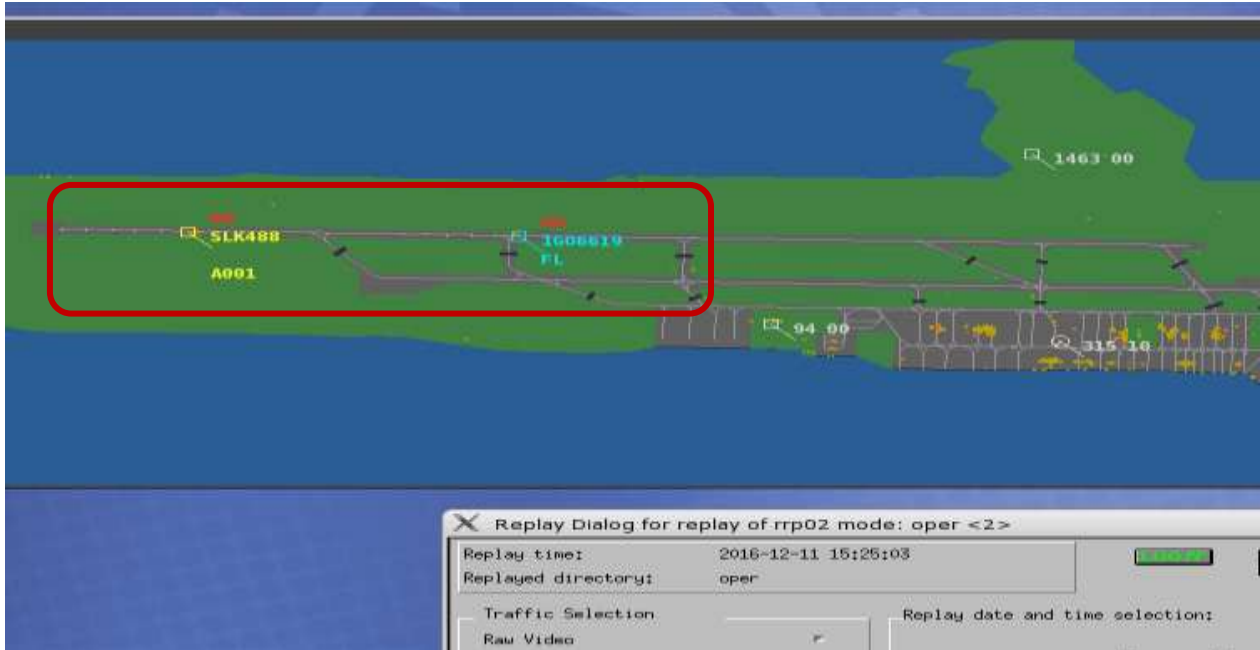
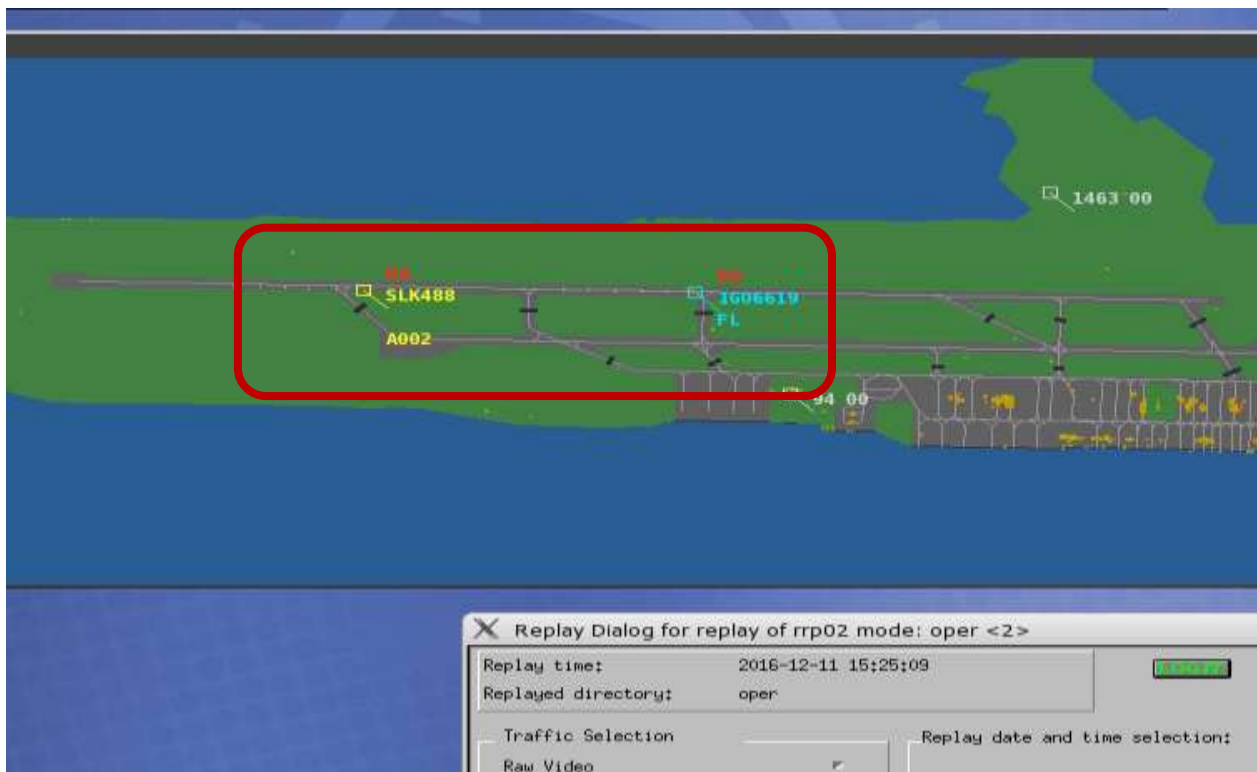


Figure 7: At time 15:25:00, SLK488 over threshold RWY19L and IGO6619 rolling.



**Figure 8: At time 15:25:03, SLK488 position between threshold RWY 19L and abeam TWY K whereas position of IGO6619 abeam TWY A**



**Figure 9: At time 15:25:09, SLK488 abeam TWY K and IGO6619 rolling: position abeam TWY B**



**Figure 10: At time 15:25:14 SLK488 initiated turning right for offset, position is between abeam Twy K and Twy A, whereas IGO6619 rolling RWY19L, position: between abeam Twy B and Twy R**



**Figure 11: At time 15:25:23, SLK488 going around, passing 500 feet, offset to right, position abeam Twy B whereas IGO6619 airborne, position abeam Twy C**



**Figure 12: At time 15:25:28 SLK488 going around, passing 500 feet, offset to right, position abeam Twy B whereas IGO6619 airborne, position abeam Twy C**

## 1.19 Useful and Effective Techniques Nil

## 2. ANALYSIS

Inter-globe IGO6619 aircraft A320-232 registration VT-IEM a scheduled flight from Kolkata (VECC) to Shamshabad (VOHS) was given line up and backtrack Runway 19L from Taxiway K by the tower Controller (full length departure). At that time, UAE572 B77W scheduled flight from Kolkata (VECC) to Dubai (OMDB) had crossed Runway 19R and was on Taxiway A and approaching holding point Runway 19L. The tower controller, in order to expedite two departures before the arriving Silk Air SLK488 asked UAE573 if she is ready for immediate departure. On getting confirmation from UAE573, the tower controller asked UAE573 to line up runway 19L abeam taxiway "A" for intersection departure and immediately cleared UAE573 for takeoff at time 15:21:36 UTC when the arriving aircraft Silk Air SLK488 was approximately 09 Nm. The UAE573 which was a heavy aircraft, started rolling at time 15:22:56, when tower controller asked UAE573 "Cleared for take-off, wind calm" i.e. after an elapse of 01 minute 20 seconds from the first take off clearance. By this time, the arriving Silk Air SLK488 was less than 6 NM from touchdown. The Tower Controller who wanted to expedite the second departure ignored the wake turbulence constraints and released the second departure Inter-globe IGO6619 at 15:24:06 i.e. just after 01 minute 10 seconds after the preceding heavy aircraft started rolling. UAE573 was airborne and released to approach radar on 127.9 MHz at time 15:23:41. It is pertinent to mention here that before UAE573 started take-off roll at time 15:22:56, the succeeding departure Inter-globe IGO6619 was ready for departure at time 15:22:40. When IGO6619 started takeoff roll at time 15:24:17, the arriving aircraft, SLK488 was over threshold of Runway 19L. **The lateral separation was reduced to just 0.6 NM.** As per Para 7.9.1 (Separation of the landing aircraft and preceding landing aircraft and departing aircraft using the same runway) of ICAO DOC-4444 (Air Traffic Management (PANS-ATM)) which inter-alia states that "**Except as provided in 7.10 and Chapter 5, Section 5.8, a landing aircraft will not normally be permitted to cross the runway threshold on its final approach until the preceding departing aircraft has crossed the end of the runway in use,** or has started a turn or until all the preceding landing aircraft are clear of the runway- in-use." The arriving SLK488 started turning right for offset after crossing abeam Twy K at time 15:25:14 UTC.



### 3. CONCLUSIONS

#### 3.1 Findings

1. The Indian registered aircraft VT-IEM (IGO6619) as well as the foreign registered aircraft 9VMGH (SLK488) were on scheduled flights from Kolkata to Shamshabad and from Singapore to Kolkata respectively under the command of an appropriately licensed ATPL holder and FO being CPL for Inter-globe whereas the Commander as well as FO in case of Silk Air were ATPL holders.
2. The medical of both the cockpit crew members of IGO6619 was valid. The crew of IGO6619 and SLK 488 have undergone pre-flight medical checks including BA test which was negative.
3. Traffic density with Kolkata Approach as well as Tower was moderate.
4. The tower controller tried to accommodate two departures before arrival of Silk Air SLK488 using a non-standard procedure wherein he allowed one aircraft to back track and other aircraft for intersection departure.
5. Go around of Silk Air SLK488 was not anticipated by the tower controller and the controller was expediting the departure of Inter-globe IGO6619 despite the fact that the arriving Silk Air SLK488 was nearing the threshold of RWY 19L at the time Inter-globe IGO6619 started takeoff roll.
6. The tower controller failed to comply with the standard operating procedure with respect to the separation between the departing and arriving aircrafts.
7. The tower controller asked the arriving aircraft “**reduce to minimum approach speed**” though the tower controller was not rated for **RADAR**.
8. The Pilot Flying of Silk Air SLK488 while initiating go around steered the aircraft slightly offset to the right to separate from the traffic. Furthermore, the tower controller too reacted immediately to resolve the conflict between departing traffic IGO6119 and traffic SLK488 going around.
9. The tower controller failed to take cognizance of the wake turbulence criterion.

### 3.2 Probable cause of the Serious Incident

Use of Non-Standard operating procedure as well as unawareness of performance and checks in respect of a heavy aircraft by the Tower Controller.

### 3.3 Contributory Factors

1. The lack of situational awareness and fixation for expediting a departure.
2. The failure of approach controller to monitor the speed of arriving traffic SLK488 and Non observance of the speed of arriving Traffic SLK 488 by Tower Controller.

## 4. SAFETY RECOMMENDATIONS

1. The non standard practice of simultaneous lining up of two departures from taxiway "K" and taxiway "A" for expeditious departure shall be stopped.
2. The approach controllers be sensitized to continuously monitor various parameters of the aircraft as available in Radar Data Block and timely application of various speed control procedures as per AAI's Manual of Station Level Training and Rating (MSLTAR).
3. AAI shall devise differential time based spacing between subsequent arrivals in terms of time to threshold (TTT) for departure/arrival planning for all the airports with high traffic density.



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Place: New Delhi

Date: 10/11/2017