FINAL REPORT No.4-02/4-17(5-18)

ON THE AIRCRAFT SERIOUS INCIDENT LOSS OF SEPARATION AIRCRAFT Airbus A-320, registration VP-BWI and military aircraft F15Ccallsign MA01, at Riga FIR on November 23, 2017

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Abbreviations and Terminology

ATCC - Air Traffic Control Centre
ATRACC- ATC System for Riga Area Control Centre Guidance and Control System
ACFT - Aircraft
ATC - Air Traffic Control
UTC - Universal Time Coordinated
AoR - Area of Responsibility
CWP- Controller Working Position
NM - Nautical mile
ACFT-aircraft
Ft - Feet
FIR - Flight Information Region
ATS - Air Traffic Services
STCA - Short-Term Conflict Alert
FL - Flight Level
TMA-Terminal Control Area
GAT - General Air Traffic
OAT – Operational Air Traffic
MCU –Mission Conrol Unit
OSUP – Operational Supervisor
FMP – Flow Management Position
FDA-Flight Data Assistant
SUA -Special Use Airspace

Scramble –An order directing take -off of Aircraft as quickly as possible, usually by Mission instructions.

A-SCR -ALPHA Scramble –Tactical mission of military aircraft involved in an actual air policing incident.

AP- Air Policing-A peacetime mission involving the use of the Air Surveillance and Control System, air command and control and appropriate air defence assets, including interceptors, for the purpose of preserving the integrity of the NATO airspace part of Alliance airspace.

Synopsis

Unless stated otherwise the time in this Report is UTC

On Thursday 23rd of November, 2017 the airline "Russia" Airbus A320-200, registration VP-BWI, call sign SDM-6641 was flying on scheduled flight at FL 360 in the Latvia air space from Sankt-Petersburg /Pulkovo (ULLI) to Berlin-Schonefeld (EDDB). At that time Operational Air Traffic (OAT), two F15C aircraft were tasked by Combine Air Operation Centre (CAOC) at Uedem, Germany, with ALPHA Scramble (A-SCR) mission to interrogate the targets, transiting over international waters with transponders switched off. Two F15C, call signs MA01 and MA02, departed from Šiauliai (EYSA) at 07:45. Mission was controlled by MCU Control Reporting Centre "KARMELAVA", Lithuania personnel - Fighter Controller (FC) and Fighter Allocator (FA). Flight were coordinated with appropriate ATS Units Vilnius and Riga.

MA01 and MA02 were ordered BY FC to climb to FL340. The MA 01 and 02 continued flying to FL340 when Fighter Allocator (FA) told to Fighter Controller (FC) that ATC has informed him about TCAS warning on commercial airliner flying in the vicinity of F-15s. Radio conversation was checked later on in CRC Karmelava and it was evident on the recordings that FC cleared F15s to FL340, which was acknowledged by pilot at the time 07:53.

In despite of instruction by FC to top FL340 military ACFT violated cleared level and this lead to trigger TCAS RA for Airbus 320, call sign SDM6641. Civil ACFT A320 followed instructions of TCAS RA.

ATC Controller has informed SDM6641 before TCAS RA about military ACFT 2000ft below. Minimum horizontal separation recorded was **3.6NM,** minimum vertical separation recorded was **200FT.**

The incident occurred in the Riga FIR Class C airspace, airspace type TMA. The TAIIB classified the occurrence as a serious incident and initiated an investigation.

Notification

One day after the occurrence on Friday, November 24, 2017 the Transport Accident Investigation Bureau (TAIIB) was advised by the Safety Management Department of Air Navigation Service Provider (ANSP) the State Joint Stock Company „Latvijas gaisa satiksme" (LGS) with ATC Occurrence Preliminary Report according to REGULATION (EU) 2015/1018 of 29 June 2015 laying down a list classifying occurrences in civil aviation to be mandatorily reported according to Regulation (EU) No 376/2014 of the European Parliament and of the Council that an occurrence had taken place (separation minima infringement) in Riga Flight Information Region (FIR), class C airspace on Thursday, November 23, 2017 at 07:54 UTC between a scheduled flight of Airbus A320-200, registration VP-BWI, call sign SDM-6641and military F15C, call signs MA01 and MA02 after departure Šiauliai (EYSA)

Investigation

TAIIB Authorities classified the occurrence as a serious incident and initiated an investigation under the provisions of Annex 13 to the Convention on International Civil Aviation (Chicago 1944) and the REGULATION (EU) No 996/2010 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 20 October 2010 on the investigation and prevention of accidents and incidents in civil aviation, as well as forwarded request to Baltic Air Surveillance Network and Control System Combined Control and Reporting Centre KARMELAVA and air traffic service provider of Latvia LGS for providing any relevant available information regarding to the incident and personnel data of military and civil controllers involved in the serious incident.

1. Factual information

Flight plan of ACFT A320

```
DFU255 230346
FF EVRRZDZX EVRRZQZX
230346 EUCHZMFP
(FPL-SDM6641-IS
-A320/M-SDFGHIJ1RWY/H
-ULLI0650
-K0804F340 TURALIC TURAL B141 RANVA/K0 8 04F34 0 P863 RESMO
N619 LEP
M990 GARSO L134 RONUN/K08 07F34 0 B810 KUNER/N0435F340 P31
BEZMI/N0443F360 L733 BODLA BODLA3V
-EDDB0203 EDDH LKPR
-PBN/B1D1S1 DOF/171123 REG/VPBWI EET/EETT0017 EVRR0040 EYVL0106
UMKK0lll EPWW0117 EDUU0146 EDWW0148 SEL/GPFK IFP/MODESASP
ORGN/ULLLSDMZ RMK/TCAS EQUIPPED ACARS EQUIPP)
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1.1. History of flight

At 07:41:54 Vilnius ATC informed Riga Sector WEST Controller: “Some information for you. Over TIGNU now three operational traffic from Kaliningrad. We have no communication with them, yet. They are at flight level 350 and 360 going to GARSO, GARSO estimating 48, operational traffic.”

At 07:42:24 MCU Control Reporting Centre “KARMELAVA” Fighter Allocator (FA) contacted OSUP and informed: “Good morning, it is Galaxy FA. I’m informing you that we have an **Alpha Scramble** which most probably is coming to your airspace as well. I will call you back to let you know the precise heading, altitude they need.”

At 07:42:34 OSUP asked: “Where are they departing from” Galaxy FA answered: “from Shaulai”.

At 07:42:36 OSUP asked: “From Shaulai. And heading will be?” Galaxy FA answered: “Initially 270, but we will gone change that to more northerly heading.”

At 07:42:44: “Ok. What flight levels it will be? Actually, we need to create a system flight plan for your flights, so we need...**”** `

At 07:42:51: Galaxy FA answered: “OK! Flight level 250”.

At 07:42:54 OSUP asked: “Ok. We will start with FL250 and when, may we consider reduced separation? ...1,000 feet below 290?” Galaxy FA answered: “Yeah! 1000 feet is OK”.

At 07:43:15 Sector WEST Controller informed OSUP: “Vilnius проинформировал– three operational traffic, from Kaliningrad 350, 360, в 48 над GARSO, без ответчиков, без связи.”

At 07:43:24 OSUP asked: “Каким эшелоном?” and Sector WEST Controller answered”: “350, 360”

At 07:43:28 OSUP instructed: “Пока не используем 35 и 36 пока не будет извесно остальное. С Шауляя, Alpha Scramble курс 270, изначальный эшелон 250, скорее всего за ними.” Sector WEST Controller confirmed OSUP instruction.

At 07:43:57 OSUP contacted FMP and informed: “Возможно… Alfa Scramble”

FMP and OSUP had discussion about type of military ACFT, airport departure.

At 07:44:13 asked OSUP: “NEKET–GARSO-Шауляй, не годится?”

At 07:44:15 OSUP answered: “Нет. Не годится. С Шауляя курс 270, в сторону NINTA.”

At 07:44:20 FMP asked OSUP: “Аааа, в сторону NINTA. И тогда делаем какой маршрут? Скажи мне.”

At 07:44:23 OSUP answered: “GARSA, NEKET”

At 07:46:28 OSUP asked WEST Controller: “Шауляй, так Alpha Scramble, курс 210 эшелон 300”

At 07:46:34 WEST Controller answered: “210 эшелон 300 и у меня вот, который на связи по нейтральным доложил, что это три самолета, будут в сорок шестую над GARSO, эшелон 360 и NEKET расчитывают в седьмую минуту,abeam NEKET”

At 07:46:48 OSUP asked: “Угу, принял, те тоже, эшелон 360, да?”

At 07:46:52 WEST Controller answered: “Да, ну мне их от трассы некуда девать, я их просто проинформирую.”

At 07:46:54 OSUP instructed: “И Alpha Scramble 2000 футоф separation, договорились.”

At 07:46:59 WEST Controller answered: “В верхнем пространстве спасибо.”

At 07:47:24 FMP contacted WEST Controller and declared: “Alpha Scramble зарисовали.”

At 07:49:19 Controller contacted ATCO Tallinn and informed: “Tallinn, for information, another... 3 aircraft coming to NEKET with no transponders and no communication.”

At 07:49:29 Controller informed ATCO Tallinn: “Flight level 360, NEKET time 07.”
Yeah, and there is Scramble Alfa in progress coming to intercept them.

At 07:49:29 ATCO Tallinn confirmed: "NEKET 07, flight level 360, OK Roger I can see them well"
At 07:51:34 Pilot of A320 established contact with Controller WEST: "Riga Control, Good morning, Russia 6641, position TENSI, flight level 360."

At 07:51:34 Controller answered: "Russia 6641, Riga control, Доброе утро, radar contact."

At 07:52:42 MCU Control Reporting Centre "KARMELAVA" Fighter Allocator (FA) contacted OSUP and declared: **"Galaxy FA, request FL330 and above 300 to go to supersonic."**

At 07:52:51 OSUP asked: **"What separation do you need? In that case. 2000?"**

At 07:52:54 Fighter Allocator (FA: "**Aaaa 2000**"

At 07:52:55 OSUP answered and instructed: **"Wait a minute. You may climb flight level 340 and go supersonic."**

Fighter Allocator (FA: **"Ok, thank you, bye."**

At 07:54:09 Controller called A320, SDM6641: **"Russia 6641."** Pilot Answered: "**Russia 6641**"
At 07:54:15 Controller informed: "**Russia 6641, be advised, military traffic 2000 feet below you about to go supersonic."**

At 07:54:23: Pilot of Russia 6641 **"Aaaaah, (*TCAS alert noise*) 6641, TCAS RA."**

The crew of SDM6641, SSR code 3725 followed TCAS instructions.

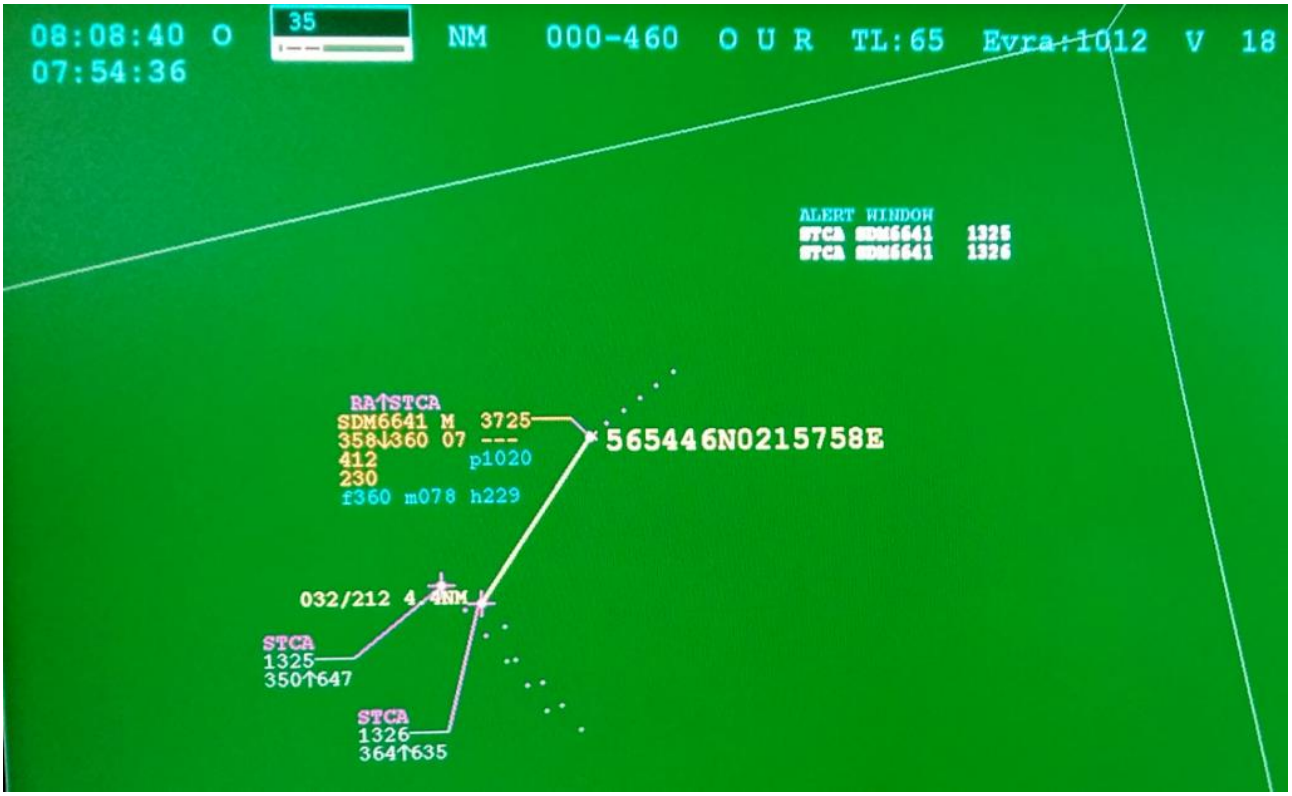

Figure 1. Radar picture Crew actions on TCAS alert

At 07:54:58 OSUP contacted Fighter Allocator (FA) of MCU Control Reporting Centre "KARMELAVA" and informed; **"Yea. That is Riga ACC supervisor. xxxxxxx calling, we have TCAS RA due to military activity for squawk 3725."**

At 07:55:06 Fighter Allocator (FA) answered: "3725.Copied TCAS"

At 07:56:09 OSUP declared: **"Yes, TCAS RA…. caused by military aircrafts."**

At 07:56:13 Fighter Allocator (FA) answered: "Ok, thank you."

At 07:56:54 Controller contacted the crew of A320, SDM6641and instructed: "Russia 6641, clear of conflict returning level 360." The pilot answered: "Russia 6641, Riga control, Roger."

At 07:56:07 MCU Control Reporting Centre "KARMELAVA" Fighter Allocator (FA) contacted OSUP and declared: **"Galaxy FA here, just for information, the TCAS alert was eeeh… The TCAS alert went off due to the angle of climb. The climb was too rapid. We did not climb above 340. So, we maintained 2,000 feet all times."**
The OSUP answered: "That is copied, Roger, bye."

1.2. Injuries to persons

NIL

1.3. Damage to aircraft

NIL

1.4. Other damage

NIL

1.5. Personnel information

RIGA WEST Sector Controller Executive:

Male, 31 year old
Ratings: All necessary ratings were valid (Rating Certificate to Air Traffic Controller Licence valid);

Medical Certificate Class 3- valid.

He had reported for duty at 06:01:16hrs UTC and had been at his working position for 54 minutes (fifty four) minutes when the occurrence happened.

1.6. Aircraft information

Aircraft type – Airbus A320-200, owner of aircraft - airline "RUSSIA".
Aircraft type – Fighter aircraft F15C, owner of aircraft – USA Air Force.

1.7. Meteorological information

EVRA METAR/METREPORTS/SPECIAL

DATE,TIME	MESSAGE

2017-11-23 05:50:00	METAR EVRA 230550Z 15012KT 6000 -FZDZ OVC007 00/M00 Q1012 REFZRA R18/590239 NOSIG
2017-11-23 05:50:01	MET REPORT EVRA 230550Z WIND RWY 18 TDZ 150/13KT END 150/12KT VIS RWY 18 TDZ 4500M MID 6KM END 6KM FBL FZDZ CLD OVC 700FT T00 DPMS00 QNH 1012HPA REFZRA TREND NOSIG
2017-11-23 06:20:00	MET REPORT EVRA 230620Z WIND RWY 18 TDZ 150/16KT END 150/13KT VIS RWY 18 TDZ 3000M MID 3400M END 3400M FBL FZDZ BR CLD OVC 600FT T00 DPMS00 QNH 1012HPA TREND NOSIG
2017-11-23 06:20:01	METAR EVRA 230620Z 16014KT 4000 -FZDZ BR OVC006 00/M00 Q1012 R18/590239 NOSIG
2017-11-23 06:23:09	SPECIAL EVRA 230623Z WIND RWY 18 TDZ 160/14KT END 160/12KT VIS RWY 18 TDZ 3100M MID 3400M END 3500M FBL DZ BR CLD OVC 500FT T00 DPMS00 QNH 1012HPA REFZDZ
2017-11-23 06:50:00	METAR EVRA 230650Z 16014KT 3400 -DZ BR OVC005 00/00 Q1012 REFZDZ R18/590239 NOSIG
2017-11-23 06:50:00	MET REPORT EVRA 230650Z WIND RWY 18 TDZ 150/15KT END 160/13KT VIS RWY 18 TDZ 3400M MID 3800M END 3800M FBL DZ BR CLD OVC 500FT T00 DP00 QNH 1012HPA REFZDZ TREND NOSIG
2017-11-23 07:20:00	MET REPORT EVRA 230720Z WIND RWY 18 TDZ 150/18KT END 160/15KT VIS RWY 18 TDZ 4900M MID 4900M END 4600M FBL RA BR CLD OVC 600FT T00 DP00 QNH 1012HPA TREND NOSIG
2017-11-23 07:20:01	METAR EVRA 230720Z 16015KT 5000 -RA BR OVC006 00/00 Q1012 R18/590239 NOSIG
2017-11-23 07:50:00	METAR EVRA 230750Z 16016KT 2300 -RASN BR OVC005 00/00 Q1012 R18/290195 NOSIG
2017-11-23 07:50:00	MET REPORT EVRA 230750Z WIND RWY 18 TDZ 150/17KT END 160/16KT VIS RWY 18 TDZ 2400M MID 2800M END 3800M FBL RASN BR CLD OVC 500FT T00 DP00 QNH 1012HPA TREND NOSIG
2017-11-23 08:20:01	MET REPORT EVRA 230820Z WIND RWY 18 TDZ 160/17KT END 160/17KT VIS RWY 18 TDZ 4900M MID 3900M END 3800M FBL RA BR CLD OVC 500FT T00 DP00 QNH 1012HPA TREND BECMG CLD OVC 300FT
2017-11-23 08:20:01	METAR EVRA 230820Z 16017KT 3700 -RA BR OVC005 00/00 Q1012 R18/290195 BECMG OVC003
2017-11-23 08:50:00	METAR EVRA 230850Z 17014KT 8000 OVC005 01/00 Q1012 R18/290195 BECMG OVC003
2017-11-23 08:50:00	MET REPORT EVRA 230850Z WIND RWY 18 TDZ 170/16KT END 170/13KT VIS RWY 18 TDZ 10KM MID 5KM END 7KM CLD OVC 500FT T01 DP00 QNH 1012HPA TREND BECMG CLD OVC 300FT
2017-11-23 08:54:30	SPECIAL EVRA 230854Z WIND RWY 18 TDZ 160/13KT MAX23 MNM11 END 170/17KT VIS RWY 18 TDZ 10KM MID 5KM END 6KM CLD OVC 500FT T01 DP00 QNH 1012HPA
2017-11-23 08:56:33	SPECIAL EVRA 230855Z WIND RWY 18 TDZ 160/15KT END 160/17KT VIS RWY 18 TDZ 10KM MID 5KM END 6KM CLD OVC 500FT T01 DP00 QNH 1012HPA
2017-11-23 09:20:00	MET REPORT EVRA 230920Z WIND RWY 18 TDZ 160/16KT END 170/12KT VIS RWY 18 TDZ 7KM MID 7KM END 8KM CLD OVC 600FT T01 DP00 QNH 1012HPA TREND NOSIG
2017-11-23	METAR EVRA 230920Z 17013KT 7000 OVC006 01/00 Q1012

09:20:01	R18/290195 NOSIG

EVLA METAR/METREPORTS/SPECIAL

2017-11-23 05:50:00	MET REPORT EVLA 230550Z AUTO WIND RWY 06 TDZ 160/12KT END 150/8KT VIS RWY 06 TDZ 10KM END 9KM CLD OVC /// 400FT T03 DP03 QNH 1008HPA QFE RWY 06 1008HPA
2017-11-23 05:50:01	METAR EVLA 230550Z AUTO 15008KT 9000 OVC004/// 03/03 Q1008
2017-11-23 06:20:00	MET REPORT EVLA 230620Z AUTO WIND RWY 06 TDZ 170/13KT END 150/9KT VIS RWY 06 TDZ 7KM END 5KM CLD OVC /// 300FT T03 DP03 QNH 1008HPA QFE RWY 06 1008HPA
2017-11-23 06:20:01	METAR EVLA 230620Z AUTO 16009KT 6000 OVC003/// 03/03 Q1008
2017-11-23 06:50:00	MET REPORT EVLA 230650Z AUTO WIND RWY 06 TDZ 160/11KT END 150/7KT VIS RWY 06 TDZ 8KM END 6KM CLD OVC /// 300FT T03 DP03 QNH 1008HPA QFE RWY 06 1008HPA
2017-11-23 06:50:01	METAR EVLA 230650Z AUTO 15008KT 5000 OVC003/// 03/03 Q1008
2017-11-23 07:02:53	SPECIAL EVLA 230702Z AUTO WIND RWY 24 TDZ 150/7KT VRB BTN 110/ AND 170/ END 160/11KT VIS RWY 24 TDZ 5KM END 7KM CLD OVC /// 300FT T03 DP03 QNH 1008HPA QFE RWY 24 1008HPA
2017-11-23 07:20:00	MET REPORT EVLA 230720Z AUTO WIND RWY 24 TDZ 150/8KT END 160/11KT VIS RWY 24 TDZ 5KM END 7KM CLD OVC /// 300FT T03 DP03 QNH 1008HPA QFE RWY 24 1008HPA
2017-11-23 07:20:01	METAR EVLA 230720Z AUTO 15008KT 5000 OVC003/// 03/03 Q1008
2017-11-23 07:23:07	SPECIAL EVLA 230723Z AUTO WIND RWY 24 TDZ 140/8KT END 150/10KT VIS RWY 24 TDZ 4900M END 7KM CLD OVC /// 300FT T03 DP03 QNH 1008HPA QFE RWY 24 1008HPA
2017-11-23 07:23:52	SPECIAL EVLA 230723Z AUTO WIND RWY 24 TDZ 140/8KT END 160/10KT VIS RWY 24 TDZ 5KM END 6KM CLD OVC /// 300FT T03 DP03 QNH 1008HPA QFE RWY 24 1008HPA
2017-11-23 07:29:52	SPECIAL EVLA 230729Z AUTO WIND RWY 24 TDZ 140/9KT END 160/10KT VIS RWY 24 TDZ 4900M END 6KM CLD OVC /// 300FT T03 DP03 QNH 1008HPA QFE RWY 24 1008HPA
2017-11-23 07:31:08	SPECIAL EVLA 230731Z AUTO WIND RWY 24 TDZ 150/10KT END 160/10KT VIS RWY 24 TDZ 5KM END 6KM CLD OVC /// 300FT T03 DP03 QNH 1008HPA QFE RWY 24 1008HPA
2017-11-23 07:42:07	SPECIAL EVLA 230742Z AUTO WIND RWY 24 TDZ 140/8KT VRB BTN 120/ AND 180/ END 150/11KT VIS RWY 24 TDZ 4800M END 7KM CLD OVC /// 300FT T03 DP03 QNH 1008HPA QFE RWY 24 1008HPA
2017-11-23 07:43:22	SPECIAL EVLA 230743Z AUTO WIND RWY 24 TDZ 150/8KT VRB BTN 120/ AND 180/ END 150/12KT VIS RWY 24 TDZ 5KM END 6KM CLD OVC /// 300FT T03 DP03 QNH 1008HPA QFE RWY 24 1008HPA
2017-11-23 07:50:00	MET REPORT EVLA 230750Z AUTO WIND RWY 24 TDZ 150/8KT END 150/11KT VIS RWY 24 TDZ 5KM END 7KM CLD OVC /// 300FT T03 DP03 QNH 1008HPA QFE RWY 24 1008HPA
2017-11-23 07:50:01	METAR EVLA 230750Z AUTO 15008KT 5000 OVC003/// 03/03 Q1008
2017-11-23 08:00:37	SPECIAL EVLA 230800Z AUTO WIND RWY 24 TDZ 150/8KT VRB BTN 120/ AND 180/ END 160/11KT VIS RWY 24 TDZ 4900M END 6KM

	CLD OVC /// 300FT T04 DP04 QNH 1008HPA QFE RWY 24 1008HPA
2017-11-23 08:01:22	SPECIAL EVLA 230801Z AUTO WIND RWY 24 TDZ 150/8KT VRB BTN 120/ AND 180/ END 160/12KT VIS RWY 24 TDZ 5KM END 6KM CLD OVC /// 300FT T04 DP04 QNH 1008HPA QFE RWY 24 1008HPA
2017-11-23 08:01:37	SPECIAL EVLA 230801Z AUTO WIND RWY 24 TDZ 150/8KT VRB BTN 120/ AND 180/ END 160/12KT VIS RWY 24 TDZ 4900M END 6KM CLD OVC /// 300FT T04 DP04 QNH 1008HPA QFE RWY 24 1008HPA
2017-11-23 08:20:00	MET REPORT EVLA 230820Z AUTO WIND RWY 24 TDZ 160/10KT END 160/12KT VIS RWY 24 TDZ 2300M END 3900M BR CLD OVC /// 300FT T04 DP04 QNH 1008HPA QFE RWY 24 1008HPA
2017-11-23 08:20:01	METAR EVLA 230820Z AUTO 16010KT 2500 BR OVC003/// 04/04 Q1008
2017-11-23 08:50:00	MET REPORT EVLA 230850Z AUTO WIND RWY 24 TDZ 160/9KT END 170/11KT VIS RWY 24 TDZ 2800M END 3900M BR CLD OVC /// 250FT T04 DP04 QNH 1008HPA QFE RWY 24 1008HPA
2017-11-23 08:50:01	METAR EVLA 230850Z AUTO 16009KT 2500 BR OVC002/// 04/04 Q1008
2017-11-23 09:20:00	MET REPORT EVLA 230920Z AUTO WIND RWY 24 TDZ 150/9KT END 160/11KT VIS RWY 24 TDZ 3500M END 5KM BR CLD OVC /// 250FT T05 DP05 QNH 1008HPA QFE RWY 24 1008HPA
2017-11-23 09:20:01	METAR EVLA 230920Z AUTO 16010KT 3300 BR OVC002/// 05/05 Q1008

TAF EVRA

2017-11-23 02:00:19	TAF EVRA 230200Z 2303/2403 15010KT 9999 OVC012 TEMPO 2303/2307 15015G25KT 4000 SN FZDZ BKN005 OVC012 BECMG 2307/2309 OVC002 BECMG 2323/2401 SCT005 BKN015
2017-11-23 05:01:14	TAF EVRA 230501Z 2306/2406 15010KT 7000 OVC012 TEMPO 2306/2307 15015G25KT 4000 SN FZDZ BKN005 OVC012 BECMG 2307/2309 OVC002 BECMG 2323/2401 SCT005 BKN015
2017-11-23 08:01:12	TAF EVRA 230800Z 2309/2409 15010KT 7000 OVC005 TEMPO 2309/2321 3000 BR OVC002 BECMG 2323/2401 SCT005 BKN015 TEMPO 2401/2409 BKN005
2017-11-23 11:01:04	TAF EVRA 231100Z 2312/2412 15010KT 5000 BR OVC005 TEMPO 2312/2323 3000 OVC002 BECMG 2323/2401 SCT005 BKN015 TEMPO 2401/2412 3000 BKN005
2017-11-23 14:01:03	TAF EVRA 231400Z 2315/2415 15009KT 7000 OVC005 TEMPO 2315/2323 3000 BR OVC002 BECMG 2323/2401 SCT005 BKN015 TEMPO 2401/2415 3000 BR BKN005
2017-11-23 17:00:58	TAF EVRA 231700Z 2318/2418 15009KT 8000 OVC005 TEMPO 2318/2323 3000 BR OVC002 BECMG 2323/2401 BKN010 TEMPO 2401/2418 3000 BR SCT005 BKN010
2017-11-23 17:54:13	TAF AMD EVRA 231753Z 2318/2418 15009KT 8000 OVC005 TEMPO 2318/2323 3000 BR OVC001 BECMG 2323/2401 BKN010 TEMPO 2401/2418 3000 BR BKN005
2017-11-23 20:02:22	TAF EVRA 232001Z 2321/2421 16012KT 8000 OVC004 TEMPO 2321/2324 15015G28KT 3000 BR OVC001 BECMG 2400/2401 BKN010 TEMPO 2401/2409 3000 -RA BR BKN002 TEMPO 2409/2421 3000 BR BKN005
2017-11-23 23:04:50	TAF EVRA 232304Z 2400/2424 16012KT 8000 OVC005 TEMPO 2400/2403 15015G28KT 3000 -SHRA BKN002 SCT010CB BECMG 2403/2404 BKN010 TEMPO 2404/2409 3000 -RA BR BKN002 TEMPO

	2409/2424 3000 -RA BR BKN005

TAF EVLA

2017-11-23 02:00:50	TAF EVLA 230202Z 2303/2403 15010KT 7000 OVC005 TEMPO 2303/2309 3000 -RA BR OVC002 PROB40 TEMPO 2303/2309 0500 FG VV001 BECMG 2309/2311 SCT012=
2017-11-23 05:00:50	TAF EVLA 230502Z 2306/2406 15010KT 7000 OVC003 TEMPO 2306/2309 3000 -DZ BR PROB40 TEMPO 2306/2309 0500 FG VV001 BECMG 2309/2311 SCT012=
2017-11-23 08:00:50	TAF EVLA 230802Z 2309/2409 16009KT 7000 OVC004 TEMPO 2309/2312 3000 BR BECMG 2312/2314 BKN015 TEMPO 2314/2318 3000 BR BKN005 TEMPO 2400/2409 3000 BR BKN005=
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2017-11-23 23:00:50	TAF EVLA 232300Z 2400/2424 18010KT 9999 BKN015 TEMPO 2400/2409 3000 -RA BR BKN002 TEMPO 2409/2414 BKN005 TEMPO 2414/2424 21012G26KT 3000 -RA BR BKN002=

TAF ESSA

2017-11-23 05:40:58	TAF ESSA 230530Z 2306/2406 18012KT 8000 BR OVC003 TEMPO 2306/2309 2500 OVC006 BECMG 2309/2312 NSC TEMPO 2318/2401 BKN008
2017-11-23 11:40:56	TAF ESSA 231130Z 2312/2412 18012KT 9999 SCT009 TEMPO 2320/2401 RA BKN008
2017-11-23 17:40:43	TAF ESSA 231730Z 2318/2418 16015KT 9999 -RA FEW010 BKN050 PROB40 2319/2323 RA BKN009 BECMG 2321/2323 22012KT
2017-11-23 17:50:41	TAF AMD ESSA 231739Z 2318/2418 16015KT 9999 -RA FEW010 BKN050 PROB40 2318/2323 RA BKN008 BECMG 2321/2323 22012KT
2017-11-23 23:40:36	TAF ESSA 232330Z 2400/2424 22012KT 9999 FEW030

SIGMET EVRR NIL

2017-11-23 05:16:58	EVRR SIGMET A1 VALID 230516/230900 EVRA-EVRR RIGA FIR SEV ICE (FZRA) FCST WI N5735 E02310 - N5754 E02417 - N5614 E02456 - N5624 E02300 - N5735 E02310 SFC/3000FT MOV E 10KT NC=
2017-11-23 08:55:56	EVRR SIGMET A2 VALID 230900/231200 EVRA-EVRR RIGA FIR SEV ICE (FZRA) FCST E OF E02500 SFC/3000FT MOV E 10KT NC=
2017-11-23 11:55:43	EVRR SIGMET A3 VALID 231200/231400 EVRA-EVRR RIGA FIR SEV ICE (FZRA) FCST E OF E02630 SFC/3000FT MOV E 10KT WKN=

SIGMET ESSA FIR

2017-11-23 00:00:36	ESAA SIGMET 1 VALID 230015/230300 ESSA-ESAA SWEDEN FIR SEV TURB FCST WI N6310 E01200 - N6310 E01400 - N6610 E01700 - N6610 E01430 - N6310 E01200 SFC/FL070 MOV N 20KT NC=
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2017-11-23 04:02:36	ESAA SIGMET 3 VALID 230405/230700 ESSA-ESAA SWEDEN FIR SEV TURB FCST WI N6310 E01400 - N6225 E01721 - N6338 E01943 - N6436 E01532 - N6310 E01400 SFC/3000FT MOV N 15KT NC=
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2017-11-23 11:11:36	ESAA SIGMET 8 VALID 231120/231200 ESSA-ESAA SWEDEN FIR CNL SIGMET 7 230930/231200=
2017-11-23 11:15:36	ESAA SIGMET 9 VALID 231125/231300 ESSA-ESAA SWEDEN FIR SEV TURB FCST WI N6339 E01438 - N6253 E01851 - N6539 E02309 - N6644 E01824 - N6339 E01438 SFC/3000FT MOV N 15KT WKN=
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2017-11-23 15:29:36	ESAA SIGMET 11 VALID 231530/231930 ESSA-ESAA SWEDEN FIR SEV TURB FCST WI N6839 E01743 - N6822 E01949 - N6426 E01448 - N6445 E01252 - N6839 E01743 SFC/FL070 MOV N 15KT NC=
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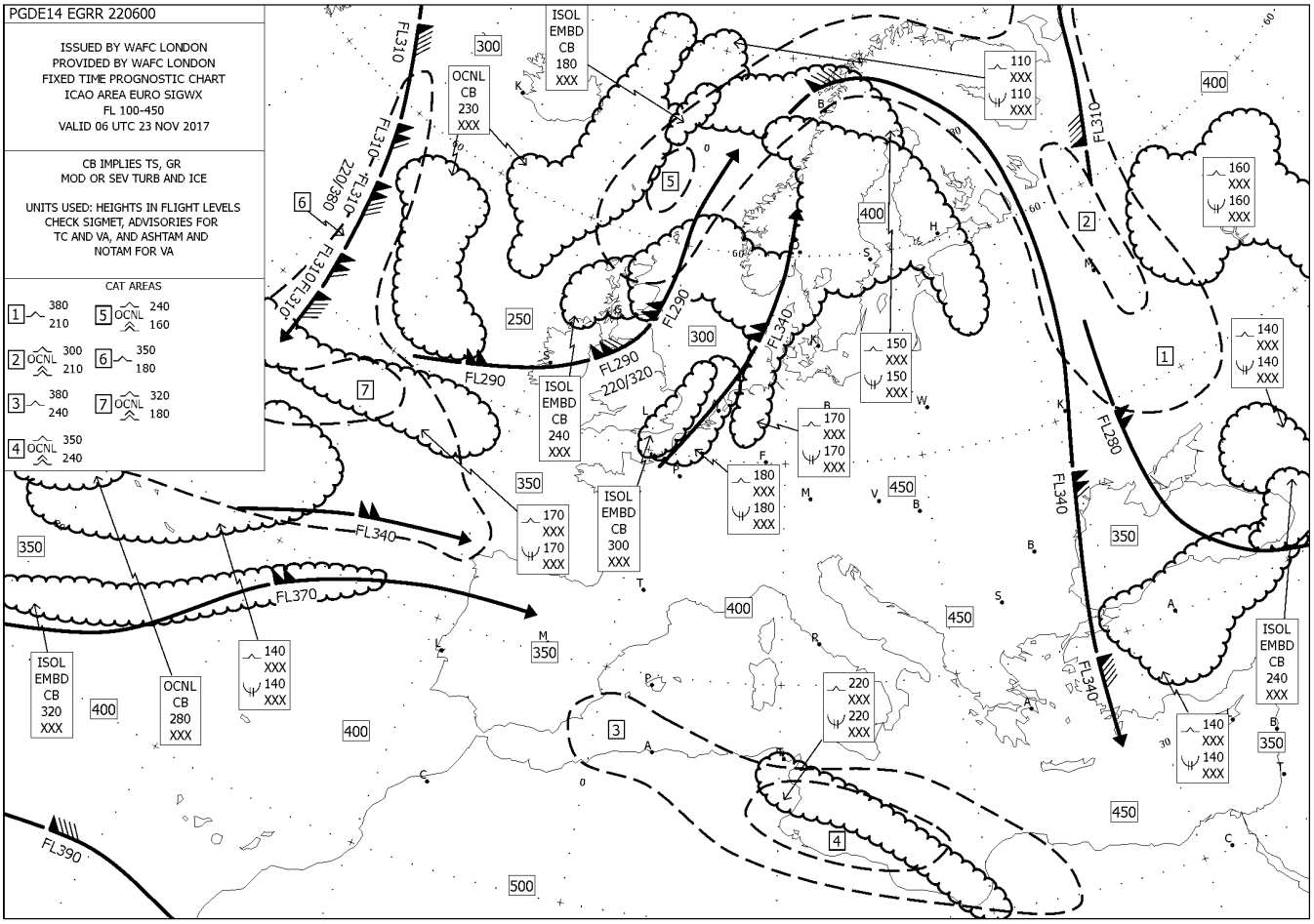
PGDE14 EGRR 220600
ISSUED BY WAFC LONDON
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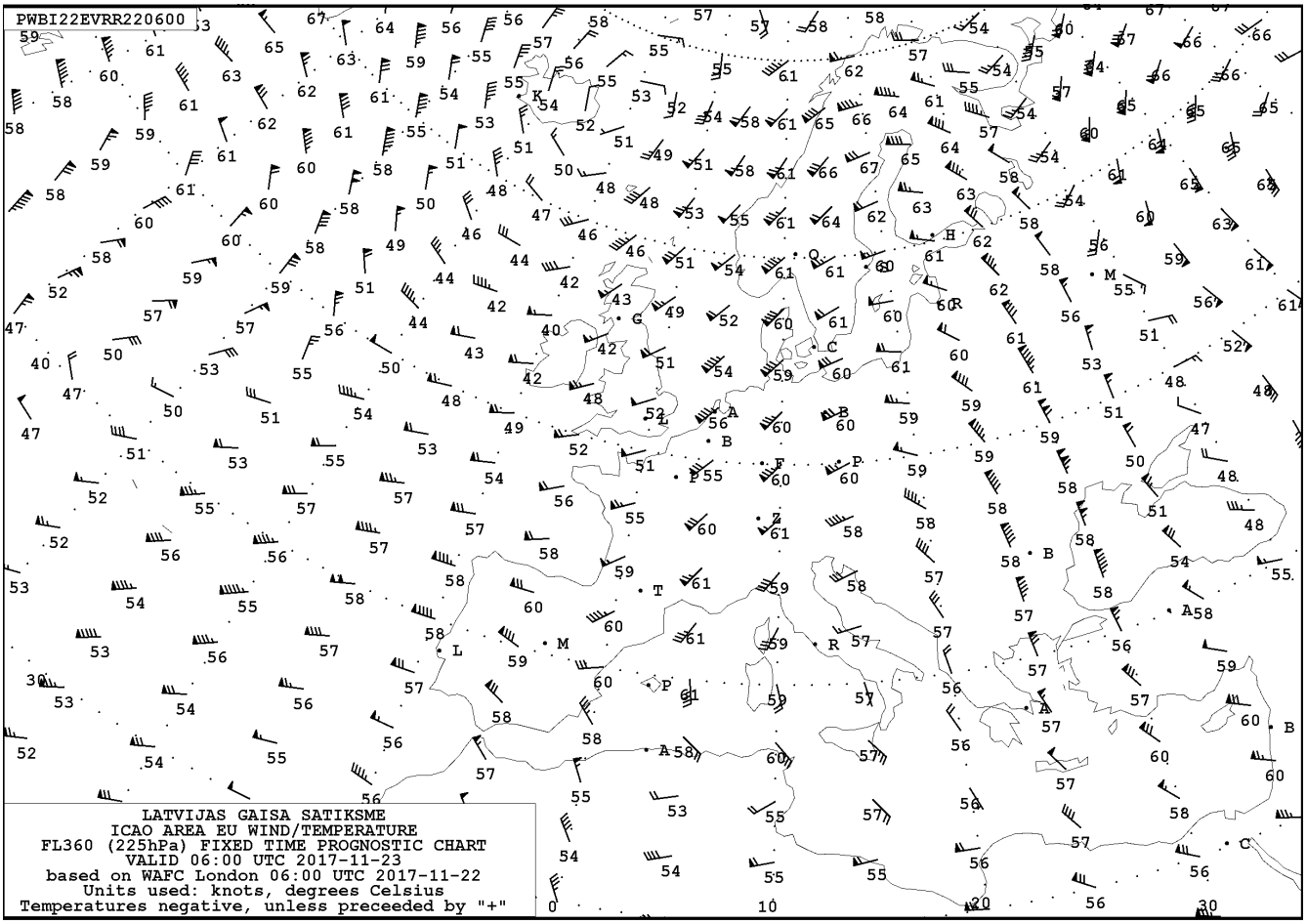


1.8. Aids to Navigation

NIL

1.9. Communications

ATCC controllers provide communication with a computerized voice communication system using pre-set switching and distribution of various aeronautical frequencies and direct communication lines. Co-ordination within Riga FIR shall be performed using available "ATRACC+" system functionality.

The incident reconstruction was based on radar information and voice communications on frequency 135.1MHz transcript between Sector WEST Controller, OSUP, FMP of Riga ATCC, MCU Control Reporting Centre "KARMELAVA" Fighter Allocator (FA) and civil aircraft crew members involved in incident.

The quality of the recordings was good. The controller and crew members used standard phraseology and there had not principal errors in the used phraseology during communication. The OSUP and FMP in communication used Russian language and sometimes did not use standard phraseology.

1.10. Aerodrome information

NIL

1.11. Flight recorders

NIL

1.12.Wreckage and impact information

Not damage

1.13. Medical and pathological information

Not relevant to this incident

1.14. Fire

NIL

1.15. Survival aspects

NIL

1.16. Tests and research

NIL

1.17. Organizational and management information

According to Letter of agreement among NATO and the Ministry of Defence of the Republic of Estonia, the ministry of Economic Affairs of the Republic of Estonia the Government of the Republic of Latvia and the Government of the Republic of Lithuania on airspace management arrangements in support of the NATO air polising mission and other air activities in the Baltic states its airspace is part of a defined Air Polising Area and is assigned to the NATO Combined Air Operations Centre (CAOC) Uedem, Germany.

Within the Baltic States CRC Karmelava will act as the primary Mission Control Unit (MCU) and will exercise Tactical Control (TACON) over Quick Reaction Alert (QRA).

The Baltic States ATC units within Tallinn, Riga and Vilnius Flight Information Regions (FIRs) are responsible to provide Air Traffic Services, in accordance with the assigned ICAO airspace classification, within lateral and vertical limits of areas of responsibility, as published in the respective national Aeronautical Information Publications.

1.18. Additional information

NIL

1.19. Useful or effective investigation techniques

NIL

2. Analysis

2.1. Introduction

The analysis is based on the Riga WEST sector Controller's, OSUP, FMP of Riga ATCC and MCU Control Reporting Centre "KARMELAVA" Fighter Allocator (FA) actions, radio communications, radar recordings, Air traffic service´s procedures.

Rules of Letter of agreement among NATO and the Ministry of Defence of the Republic of Estonia, the ministry of Economic Affairs of the Republic of Estonia the Government of the Republic of Latvia and the Government of the Republic of Lithuania on airspace management arrangements in support of the NATO air polising mission and other air activities in the Baltic states analysis.

The purpose of this investigation is reconstruction of the circumstances of flight in order to analyze, determine causal factors and if appropriate to develop recommendations on preventive actions in the future.

2.2. Air traffic service´s procedures

2.2.1. Responsibility of the appropriate civil ATC Units

It is the responsibility of the appropriate civil ATC Units to provide a safe separation of other traffic from the radar-identified military aircraft involved in ALPHA-SCR, when essential information of the mission, such as required heading(s) and level(s), are acknowledged.

The civil ATC Units will be responsible to avoid any potential conflicts with the ALPHA-SCR aircraft/formation, maintaining standard separation between GAT traffic under their control and providing the best possible separation from radar-identified military aircraft involved in an ALPHA-SCR mission.

The ATC Unit shall acknowledge the information on an ALPHA-SCR mission received by the MCU and shall provide the necessary support to ensure the required priority to the ALPHA-SCR mission in the use of the airspace.

The ATC Unit shall acknowledge the heading and level required to fulfil the ALPHA-SCR mission and shall make every effort to ensure that these requirements are met. In case of exceptional circumstances when the required level is not available for impellent safety reasons, the ATC Unit must allocate an alternative level which will have the minimal impact on the departing QRA(I) aircraft. In this exceptional case, the requested level must be allocated as soon as possible once air traffic flow conditions permit.

The relevant civil ATC Units will normally have no responsibility for the separation of the AP aircraft executing an ALPHA-SCR mission but they will provide available air traffic information to all other aircraft in the vicinity of the AP aircraft.

The relevant civil ATC Units will take any required actions to avoid or coordinate any possible conflicts between aircraft under their control, or otherwise known, and ALPHA-SCR flights.

2.2.2. Responsibility of the Mission Control Unit Control Reporting Centre

In the execution of ALPHA-SCR missions, the designated MCU will assume the responsibility for the provision of fighter control to the AP aircraft during the mission within the airspace of the Tallinn, Riga and Vilnius FIRs.

The MCU will ensure that appropriate safety standards are preserved. During an ALPHA-SCR mission, MCU Master Controllers **are required to maintain the safest separation between the air policing aircraft and all other traffic flying** in their proximity.

The MCU Master Controller will act in the safest manner against all the other traffic within the involved portion of the airspace. In accordance with the available information received by ATC Units, the MCU **Master Controller will ensure that the safety of other aircraft in the area will be not endangered**.

When an ALPHA-SCR order has been issued, the MCU Master Controller, or his designated representative, will ensure the maximum level of coordination with the appropriate ATC Units during all phases of the mission. Immediately before the initiation of an ALPHA-SCR mission, the following information shall be issued to the relevant ATC Unit:

- Airbase of departure of the AP aircraft;
- Position and identity (SSR Mode 3 A/C Code if available) of aerial target against which the scramble was ordered;
- Call sign and SSR Mode 3 A/C Code of the AP aircraft;

- Requested heading and Flight Level to reach the target in the shortest way;
- Information in case a supersonic run is needed;
- Any other additional information as required.

Once the ALPHA-SCR mission is airborne, the MCU shall inform relevant civil ATC Units about **radar identification of the AP aircraft**, **reporting SSR Codes and position**, as well as **crossing flight levels a**nd other relevant information, as appropriate.

2.2.3. National civil-military airspace coordination procedures

National civil-military airspace coordination procedures are determined in separate agreements signed by respective national authorities of the Baltic States.

Procedures to schedule and utilize designated military SUA for military aircraft within Latvian airspace is performed in accordance with "**Letter of Agreement between Latvian National Armed Forces Air Force (LNAF AF) and Air Navigation Service Provider (ANSP)** on scheduling and use of military special use airspace (SUA).

2.2.3.1. ATRACC SYSTEM

The system FPL for "ALPHA SCRAMBLE" flight is prepared by FDA controller in accordance with initial data from MCU and delivered by OSUP:

- Heading;
- Level;
- Distance.

2.2.3.2. Separation during ALPHA Scramble

Reduced Separation during ALPHA Scramble.

The radar separation may be reduced after coordination between Civil ATC unit and MCU:

Vertically:

- to 1000 ft within the airspace below FL290;
- to 2000 ft within the airspace above FL290;

Longitudinally:

- to 5NM.

Separation from Supersonic Flights.

Within class "C" airspace Civil ATC unit will provide the radar separation from the aircraft flying supersonic:

Vertically:

- not less than 2000 ft within the airspace below FL290;
- not less than 4000 ft within the airspace above FL290; OR

Longitudinally:

- not less than 10 NM;

2.3. ATCC Operational Supervisor actions

According to Supervisor Operations manual DI-GSV/GSVC-07 procedures to schedule and utilize designated military SUA for military aircraft within Latvian airspace is performed in accordance with *"Letter of Agreement between Latvian National Armed Forces Air Force (LNAF AF) and Air Navigation Service Provider (ANSP) on scheduling and use of military special use airspace (SUA)".*

2.3.1. ATRACC system

The system FPL for "ALPHA SCRAMBLE" flight is prepared by FDA controller in accordance with initial data from **MCU and delivered by OSUP**:

- Heading;
- Level;
- Distance.

MCU Control Reporting Centre "KARMELAVA" Fighter Allocator (FA) informed OSUP that they have an **Alpha Scramble** which most probably will come to LATVIA airspace. On OSUP request MCU informed about departure airport, possible heading and flight level. OSUP informed MCU that actually, we need **to create a system flight plan for your flights**, so we need these data.

OSUP asked is it possible to consider reduced separation, 1000 feet below 290?" and MCU (Galaxy FA) answered: "Yeah! 1000 feet is OK".

Then OSUP contacted FMP and informed about possible "Alfa Scramble" mission. OSUP informed FMP about type of military ACFT and airport of departure.

FMP tried to agree possible flying route and asked OSUP "NEKET–GARSO-Шауляй, не годится?" OSUP answered: "Нет. Не годится. С Шауляя курс 270, в сторону NINTA."

FMP asked OSUP: "Аааа, в сторону NINTA. И тогда делаем какой маршрут? Скажи мне." OSUP answered: "GARSA, NEKET"

MCU Control Reporting Centre "KARMELAVA" Fighter Allocator (FA) contacted OSUP and declared: "**Galaxy FA, request FL330 and above 300 to go to supersonic."** OSUP asked: **"What separation do you need? In that case. 2000?"**

Fighter Allocator (FA) confirmed: "**Aaaa 2000**"

OSUP answered and instructed: **"Wait a minute. You may climb flight level 340 and go supersonic."**

Fighter Allocator (FA) confirmed instruction: **"Ok, thank you, bye."**

Later OSUP instructed WEST Controller: "Alpha Scramble 2000 футоф separation, договорились." WEST Controller confirmed: "В верхнем пространстве спасибо."

After TCAS alert signal triggering at civil ACFT OSUP contacted Fighter Allocator (FA) of MCU Control Reporting Centre "KARMELAVA" and informed that **we have TCAS RA due to military activity for squawk 3725."**

2.4. Riga Control Sector WEST Controller actions

FMP contacted WEST Controller and declared: "Alpha Scramble зарисовали."

Controller contacted ATCO Tallinn and informed that another 3 aircraft coming to NEKET with no transponders and no communication, light level 360, NEKET time 07 and there is "Scramble Alfa" in progress coming to intercept them.

ATCO Tallinn confirmed: "NEKET 07, flight level 360, OK Roger I can see them well"

When OSUP instructed WEST Controller about “Alpha Scramble” 2000 футоф separation, WEST Controller confirmed: “В верхнем пространстве спасибо.”

Then WEST Controller called A320, SDM6641 and informed: “**Russia 6641, be advised, military traffic 2000 feet below you about to go supersonic.”**

Pilot of Russia answered and simultaneously TCAS alert signal triggered.

2.5. MCU Control Reporting Centre “KARMELAVA” Controllers actions.

At investigation disposal was not recordings of MCU Flight Controller (FC) with military ACFT crew.
In the letter No.RIS-101(4.5) of Baltic Air Surveilance Network and Control System Combined Control and Reporting Centre Karmelava (December 12, 2017) investigation was informed that in CRC KARMELAVA **radio conversations were checked** and was evident that on recordings **that FC cleared military ACFT to FL340 and clearance was acknowledged by pilot at 07:53UTC.**

MCU Control Reporting Centre “KARMELAVA” Fighter Allocator (FA) contacted OSUP and declared, that the TCAS alert went on due to the angle of climb. The climb was too rapid. We did not climb above 340. So, we maintained 2,000 feet all times.”

Radar recordings and analysis are proof to the contrary. A320, SDM6641 was at FL360 but military aircraft with RSS codes 1325 and 1326 reached flight levels from **FL350 to FL364** (see Figures 2, 3, 4.)

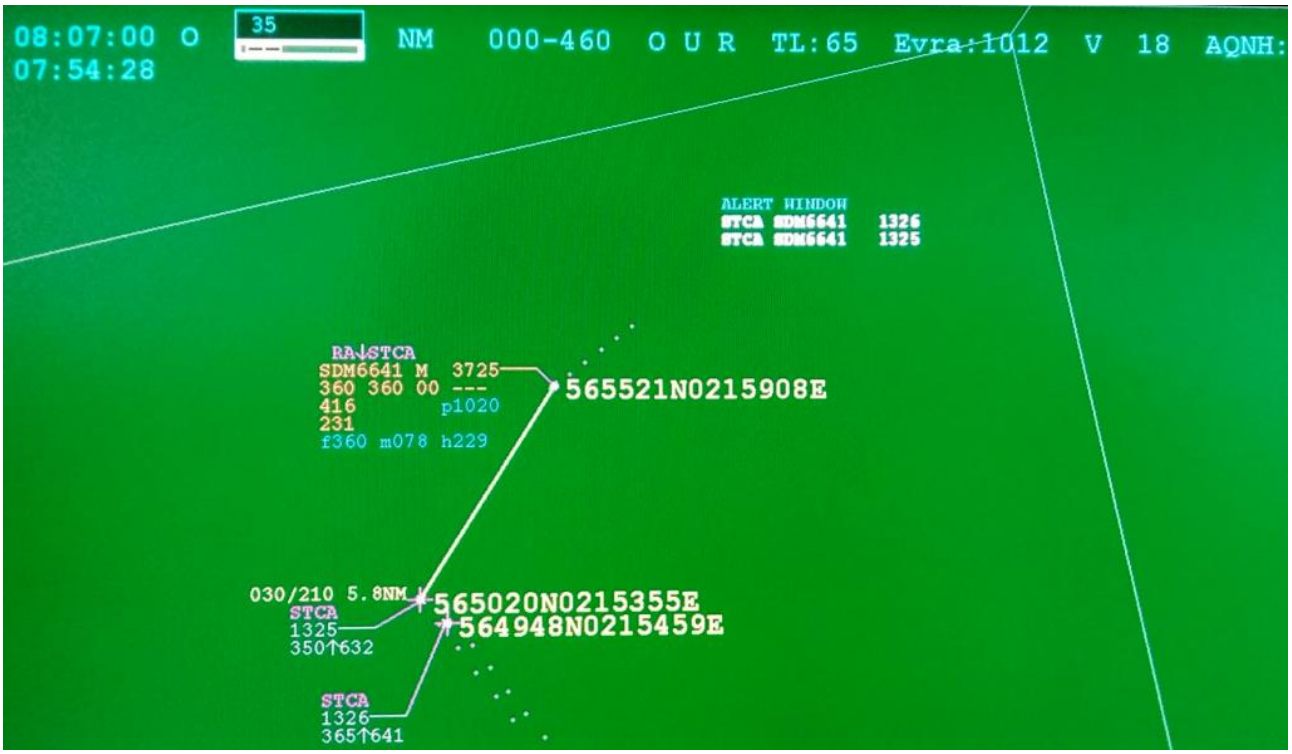


Figure 2.

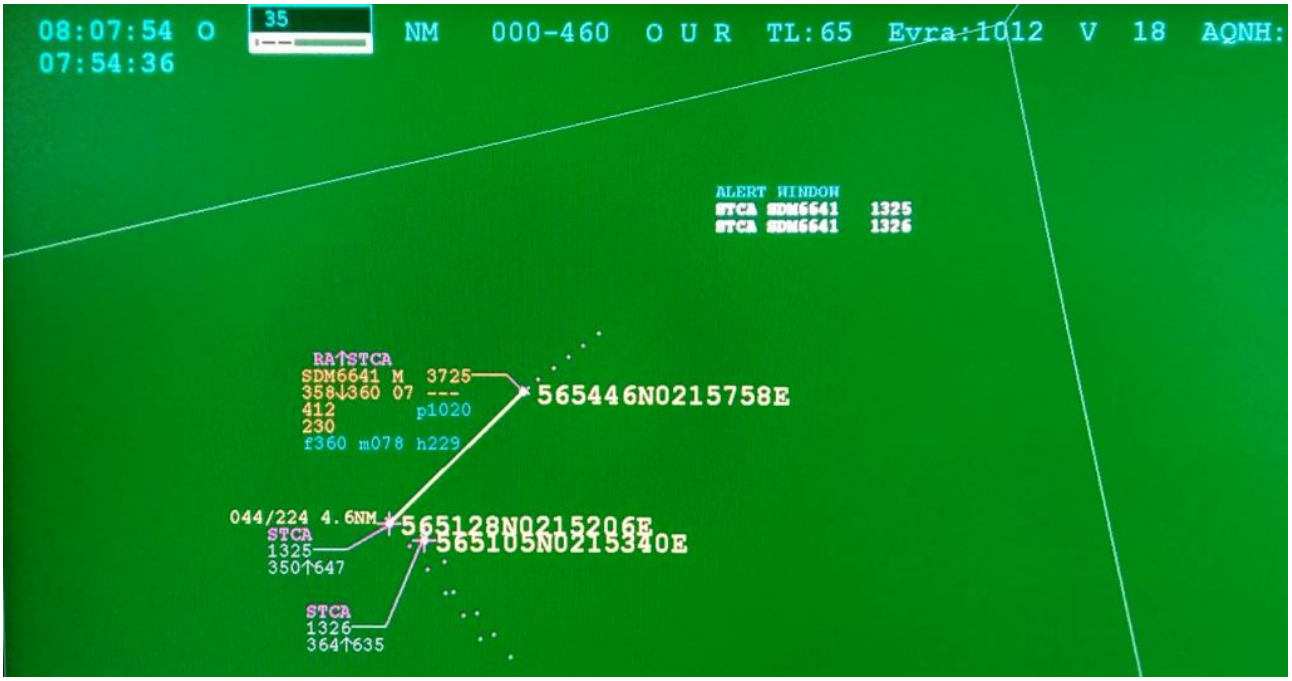


Figure 3.

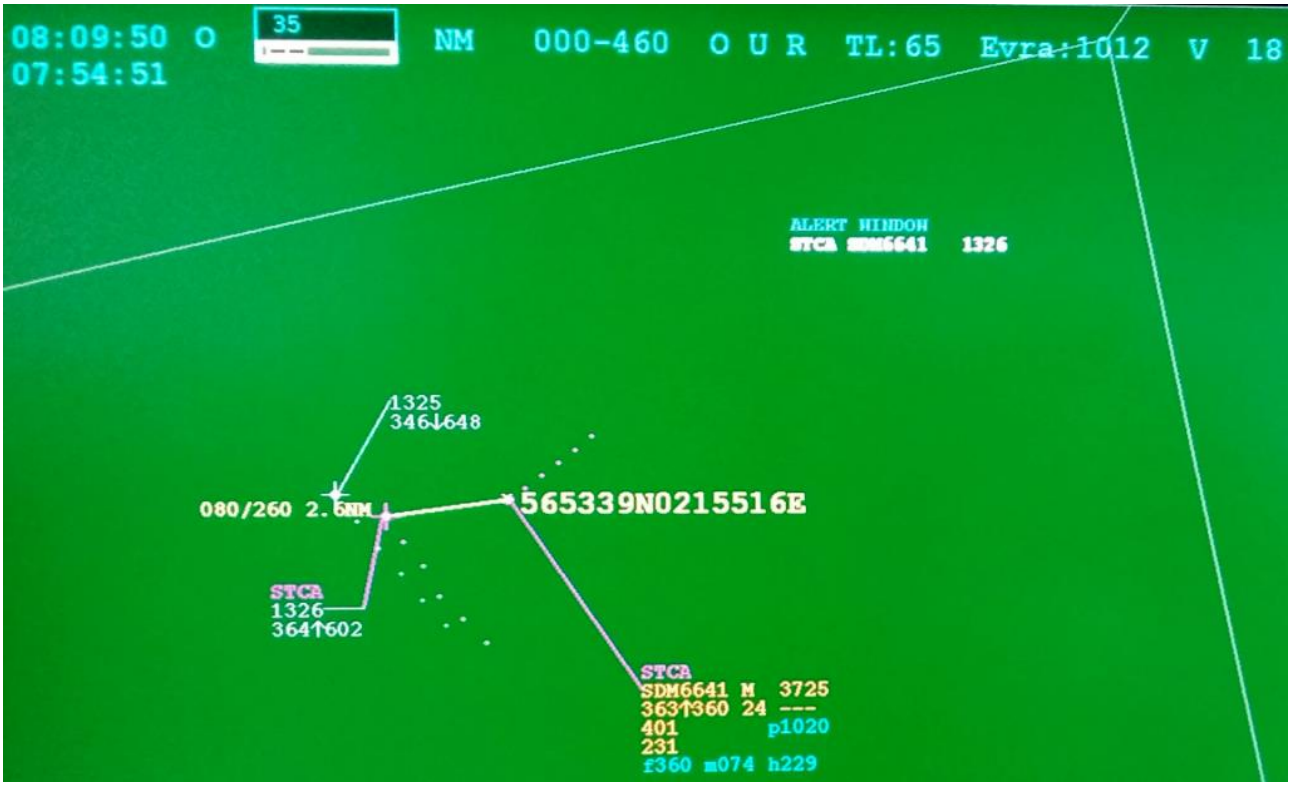


Figure 4

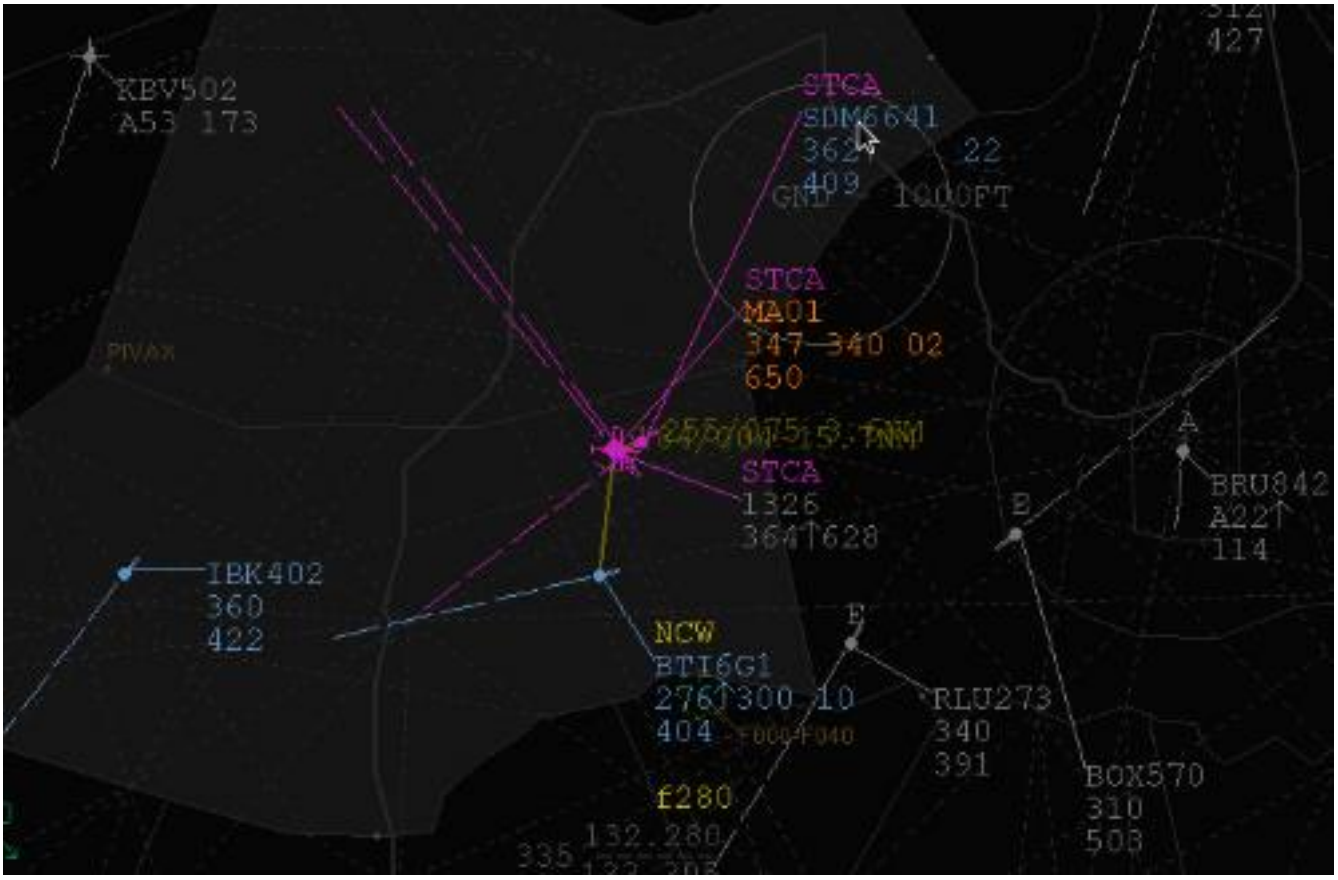


Figure 5 Radar recordings, military aircraft violated coordinated with OSUP flight level 340

3. Conclusions

During process of investigation were made the following conclusions:

3.1. Findings

- In order to maintain an overview traffic, the Air Traffic Control radar system ATRACC+ was in use;
- Flight were coordinated with appropriate ATS Units Vilnius and Riga.
- At the time of the incident the traffic was handled by Sector WEST Executive Controller;
- OSUP instructed WEST Controller of Alpha Scramble separation 2000ft;
- There was fixed violation of the Military aircraft coordinated with ANSP flight level 340;
- OSUP instructed MCU controller (FA) that they may climb top **flight level 340** and go supersonic.
- According to Control and Reporting Centre Karmelava letter (December 12, 2017) investigation was informed that in CRC KARMELAVA **radio conversations were checked** and was evident **that FC cleared military ACFT to FL340 and clearance was acknowledged by pilot at 07:53UTC;**
- Both the MCU Controller ‘s Fighter Controller and Fighter Allocator held valid licenses and ratings and was qualified and current at their positions;

- Riga Sector WEST Controller held valid licenses and ratings and was qualified and current at their positions;

- Then WEST Controller informed A320, SDM6641 about military traffic 2000 feet below and will go supersonic";

- TCAS ALERT signal trigged on and Civil ACFT followed TCAS RA instructions;

- Minimal vertical separation between aircraft was **200FT**, horizontal **3.6 NM**;

- At the time of incident Visual Meteorological Conditions (VMC) prevailed.

3. 2. Causes

3.2.1. Main Cause

The source or origin of an event that played the major role that probably caused this incident - infringement the separation minima between an aircraft Airbus A320-200, registration VP-BWI, and military aircraft F15C, SSR code 1325 was military aircraft late reaction to Fighter Controller (FC) instruction.

3.2.2. Contributing causes

Failure of the pilot of F15C to maintain cleared top flight level 340 due to very high speed or sharp climbing rate at the time Fighter Controller instruction.
The event after which incident became inevitable.

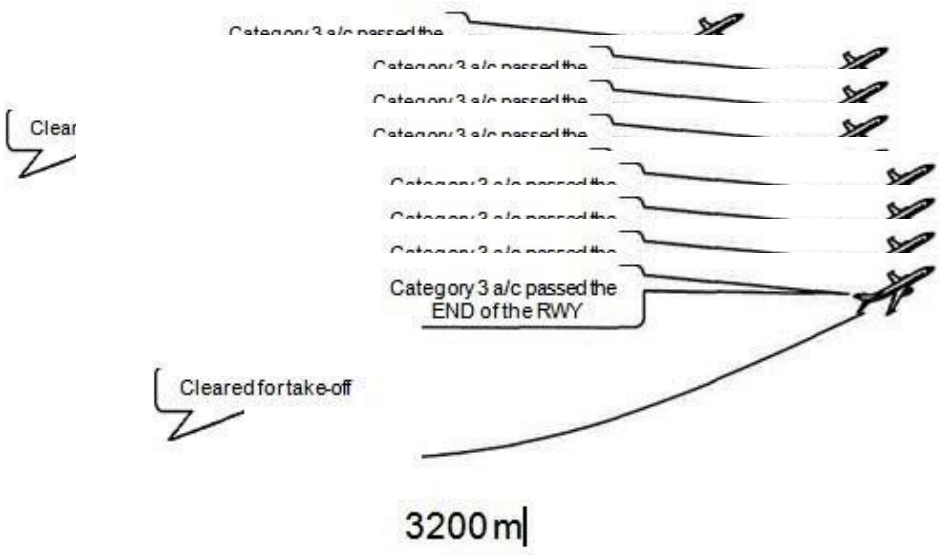
4. Safety Recommendations

There are not Safety Recommendations

Riga December 11, 2018

Investigator in charge Visvaldis Trūbs

Director of Transport Accident and
Incident Investigation Bureau Ivars Alfreds Gaveika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END of the RWY
Cleared for take-off
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