



Federal Supervisory Authority
for Air Navigation Services

Figures, Data, Facts

Report of the Federal Supervisory Authority for Air Navigation Services 2015/2016



An aerial view from an airplane window, showing the wing of the aircraft in the foreground and a city landscape below. The sky is clear and blue. The city below is densely packed with buildings and roads, with some green spaces and a large circular area visible in the lower left. The wing of the aircraft is visible in the upper left and center, extending towards the right. The horizon is visible in the distance, with a thin layer of clouds or haze.

Content

Word of Welcome 3

Safety Oversight over Air Navigation Service Providers and Personnel (SOP) 4

Air navigation services technology safety oversight (ST) 12

Airspace, flight procedures and Law (LFR) 19

Central Administration (ZV) 24

Military Air Traffic Services Liaison Office (VBB) 27

Press and Public Relations 30

Abbreviations 32

Imprint 35

Word of Welcome

Dear readers,

By means of the present annual report, we look back on the past two years. In 2015 and 2016, a lot happened at the Federal Supervisory Authority for Air Navigation Services (German acronym: BAF). The purpose of this brochure is to provide you with a short overview.

In the past two years, new assignments were again given to the BAF, which can only be completed by additional staff. An organizational analysis performed in 2015 confirmed this assessment. At the end of 2016, the Authority had 86 employees. Since the establishment of the BAF in 2009, the posts provided for in its budget have been successively filled. Ultimately, the number of personnel granted to my Authority has increased by more than 30% since its establishment. We are in a good position and will take on even more staff in the coming years.

The impact of wind energy on air navigation services is still an issue my Authority is involved in and numerous lawsuits are still pending. Since April 2016, however, a decision by a Supreme Federal Court exists. In it, the Federal Administrative Court corroborated the view of the BAF: The question of whether or not interference according to article 18a of the Aviation Act is possible hinges on the technical operability of an air traffic services facility.

The establishment of the new Bundeswehr Aviation Office (German acronym: LufABw) at the beginning of 2015 entailed organizational changes with regard to civil-military cooperation in air

navigation services. As early as 20 July 2015, I was able to sign a new framework agreement with the director of the LufABw, Major General Dr. Ansgar Rieks. The Military Air Traffic Services Liaison Office of the Bundeswehr (German acronym: VBB) housed in the building of the BAF continues to act as a link to the new aviation authority.

At European level, increased cooperation with other supervisory authorities should be noted. By now, agreements about cooperation in the field of supervising civil air navigation service providers exist with all neighbouring countries. With the other European countries, information and experiences are also actively exchanged.

These are only some aspects of the 2015/2016 reporting period worth mentioning, there are many more. In addition to the figures and data, the other facts pertaining to the BAF are also of interest. I wish you much enjoyment with reading our report!

Dr. Nikolaus Herrmann

Prof. Dr. Nikolaus Herrmann
Director of the BAF



Safety Oversight over Air Navigation Service Providers and Personnel (SOP)

The Safety Oversight over Air Navigation Service Providers and Personnel (SOP) Department oversees organisations that provide their air navigation services on German national territory according to article 27c of the Aviation Act. Safety oversight takes place above all in compliance with the EU Regulations on the Single European Sky (SES). The oversight function encompasses the following air navigation services:

- Air traffic services (ATS),
- Technical support services: communication (C), navigation (N) and surveillance (S),
- Aeronautical information services (AIS) and
- Aeronautical meteorological services (MET) as well as
- Air traffic flow management and the control of airspace management (ATFM, ASM)..

Air Navigation Service Providers in Germany

The following table lists all the air navigation service providers that were active in Germany in 2015 and 2016.

Table 1: Certified air navigation service providers in Germany in 2015/2016		
ANSP	ANS	Training
Airbus Operations GmbH	ATS (TWR only)	on-the-job-training

Table 1: Certified air navigation service providers in Germany in 2015/2016		
Austro Control GmbH	ATS (TWR only)	on the job training
BAN 2000 GmbH	CNS	
Deutscher Wetterdienst (DWD)	MET	
DFS Deutsche Flugsicherung GmbH	ATS, AIS, CNS	Basic training and on-the-job-training
DLR Gesellschaft für Raumfahrtanwendungen (GfR) mbH	CNS (COM only)	
EUROCONTROL Maastricht	ATS (ACC only) and CNS	on-the-job-training
TTC The Tower Company*	ATS (ACC only)	on-the-job-training
* from 01 January 2017 DAS DFS Aviation Service		
Rhein-Neckar Flugplatz GmbH	ATS (TWR only)	on-the-job-training

Source: BAF



From their radar screens at Langen Centre (Hesse), controllers of the DFS control air traffic above western Germany

Audits and inspections

The BAF performs its supervisory activities by means of on-site audits and inspections at aerodromes or other permanent establishments of air navigation service providers. During the last two reporting years, desktop audits were also carried out. In these cases, documents were checked at the BAF.

Supervision extends to all air navigation services provided in Germany (ATM, CNS, MET and AIS) as well as air traffic management, civil-military airspace utilization and network functions.

Table 2: Audits and inspections

Audit area	2015	2016
TWR, CTR	12	9
CNS	12	7
AIS	2	0
MET	6	2
Training	11	5
ATFM/ASM	2	1
Plus desktop audits	12	21
Total	57	45

Source: BAF

Changes to functional systems of air navigation services

All air navigation service providers must inform the BAF about planned changes to their functional systems, i.e. the combination of systems, procedures and personnel, which are relevant to safety. Notifications of safety-relevant changes are examined by the BAF. If such a change is subject to approval, the air navigation service provider must submit a safety documentation. The BAF will then review the safety arguments set out in the documentation according to the specifications of the Commission Implementing Regulations (EU) No 1034/2011 and (EU) No 1035/2011 in connection with the "Richtlinie für sicherheitsrelevante Änderungen an funktionalen Systemen der Flugsicherung" (Directive on Safety-Related Changes to Functional Air Navigation Services Systems). If the per-

inent requirements are met, the change stated in the notification will be approved.

A total of 128 change notifications were submitted for approval in 2016. Compared to the previous years, a slight decrease in the number of notifications could be registered in 2015. By contrast, the number of notifications where the changes were demonstrably not safety-relevant was significantly higher in 2016 and amounted to 42.

In 2016, a total of 25 safety documents were reviewed while 27 reviews were carried out in 2016.

Area	2015	2016
Number of notifications of changes to functional systems	145	128
<i>among them: reviews of the safety documentation by the BAF</i>	27	25
Demonstrably not safety-relevant	20	42
Total number of notifications	165	170

Source: BAF

Air Navigation Service Personell

The BAF issues licences for air navigation services personnel (air traffic controllers, flight data operators, flight information services and aeronautical information services personnel, air traffic services

engineering personnel). Since 1 January 2016, it also issues certificates demonstrating the additional competence of civil air traffic controllers (Certificate of Competence, COC) to provide air traffic control services to operational air traffic (e.g. military aircraft) at German control centres.

Type of lizcence	Number
Licences for air traffic services engineering personnel (ATSEP)	928
Licences for other air navigation services operating personnel	812
Licences for student air traffic control officers (STATCO)	70
Licences for air traffic control officers (ATCO)	5.498
Certificates demonstrating the additional competence of civil air traffic controllers (COC)	500
Total	7.808

Source: BAF

Since June 2015, licences are issued by means of the LiMa licence database. This licence database was developed because of changes in the field of air traffic controller licensing in 2011 and 2015 (Regulation (EU) 2015/340). In this field, detailed implementing regulations exist today to ensure that a uniform and high level of safety can be maintained. The licences issued by the BAF are in keeping with European standards and are mutually recognized by the member states. Moreover, the Regulation requires that all compe-

tent supervisory authorities – this also includes the BAF – be independent of the air navigation service providers and training organizations.



Sample licence for air navigation services personnel

In addition to the licences, the ratings of the other air navigation services operating personnel and the other air traffic services engineering personnel were revised and adapted to the layout of the air traffic controller licences. Moreover, LiMa has an extensive reporting and analysis module, which can generate standard evaluations and statistics for the European Commission and its various institutions, in particular for the EASA (European Aviation Safety Agency), according to requirements. A further function serves for the administration of the aeronautical medical experts (AME) and the aeronautical medical centres (AeMC) approved by the BAF.

Aviation medicine

Since 2015, the Department of Aviation Medicine (MEDICAL CLASS 3) has gradually intensified on-site supervision, starting with the AeMCs. In addition, a new format for the class 3 medical fitness certificate was introduced. In April 2016, the BAF's Department of Aviation Medicine was inspected by the EASA. The auditors assured themselves that the BAF worked in compliance with pertinent rules and that the requirements of the EU regulations in force were met at the time of the audit. Moreover, the EASA auditors provided important information about the future implementation of the Regulation (EU) 2015/340 as of 01 January 2017.

In close cooperation with the competent authorities of Austria and Switzerland, essential passages of the Regulation (EU) 2015/340 were re-translated in a technically correct manner and submitted to the EU Commission for modification. The AMC and GM publications of the EASA on the Regulation (EU) 2015/340 were largely translated into German and made available to the class 3 aviation physicians.

It was possible to further intensify the contacts with the Federal Office of Civil Aviation (German acronym: LBA) and the Bundeswehr Aviation Office (German acronym: LufABw) as well as the aeronautical medical centres. Representatives of the BAF actively participated in almost all supra-regional advanced training courses in aviation medicine in Germany and organized workshops. At the end of the year 2016, exchanging all the certificates of the one hundred aeronautical medical experts (AME) and the seven aeronautical medical centres (AeMC) was successfully completed; this was necessary because of the EU Regulation.

Instruction and training

The existing demands on air traffic controllers with regard to training, licensing and medical fitness were described in greater detail following the implementation of the Regulation (EU) 2015/340 at the beginning of 2015. To enable these extensive changes to the new standards for the BAF, the aviation physicians as well as the air navigation service providers and training organizations in time, the application of the regulations was suspended until the end of 2016. The years 2015 and 2016 were used by everybody involved to carry out application, approval and implementation processes. Compared to previous years, 2015/2016 were also used to intensify supervisory activities in the field of air traffic controller training.

In the training of air traffic services engineering personnel, the option was introduced to use the standards of the EUROCONTROL Specification 132 for orientation purposes. By doing this, harmonization with other European countries was achieved while making preparations for the introduction of the Regulation (EU) 2016/1377.

The category of other air navigation services operating personnel, i.e. personnel in the fields of AIS briefing, flight data processing and flight information services, now also comprises the area of aerodrome flight information services (AFIS).

Following the certification of AFIS providers, the personnel subject to licensing has now also been incorporated into the licensing system and must comply with the requirements of the Regulation on ANS Personnel and their Training (Flugsicherungspersonalausbildungsverordnung/FSPersAV).



A controller at his Bremen Centre operating position

Reporting and registration (Occurrences)

In 2016, the introduction of the eTOKAI software to the reporting and registration system of the BAF was an important step towards the goal of achieving reporting capability on European level and to continuously improve safety in European air traffic.

Risk minimization in European airspace is a challenge that must be met at local, national and European level. This requires close cooperation among the member states to identify weak points in the system's safety and to take suitable risk minimization measures. By means of its Regulation (EU) No 376/2014, the European Union has issued uniform standards for the reporting and registration of special occurrences in the Single European Sky (SES). By doing this, the following objectives are aimed at:

- Ensuring that air navigation service providers are required to report occurrences within 72 h,
- Joint access to a central European database,
- Uniform reporting throughout the member states,
- Uniform data acquisition and analysis,
- Optimized exchange of data through comprehensive reporting and
- Binding regulations on risk minimization in Europe.

With the introduction of the new software, the BAF has implemented these standards in Germany. The BAF takes the view that using eTOKAI together with the ECCAIRS software also improves cooperation with other member states and organizations that use this system, too. Since the volume of reporting has doubled since 2015 because of additional categories of occurrences that must be reported (Commission Implementing Regulation (EU) 2015/1018) (occurrences in 2015: 2,762, occurrences in 2016: 4,439), eTOKAI and ECCAIRS facilitate the integration of this data into the European database. By means of a framework agreement, the BAF and the LBA (Federal Office of Civil Aviation) have stipulated mutual cooperation with regard to certain categories of occurrences. Since the annexes to the Commission Implementing Regulation (EU) 2015/1018 show certain parallels, a supplementary agreement to the framework agreement governs future responsibilities. The BAF must thus report some occurrences directly to the LBA while other occurrences remain within the area of responsibility of the BAF.

For the future, the BAF and the LBA jointly prepare the prerequisites and basic principles – including the processes and procedures –

needed for the mutual exchange of information and for the evaluation of the national database of all safety-relevant reports within Germany.

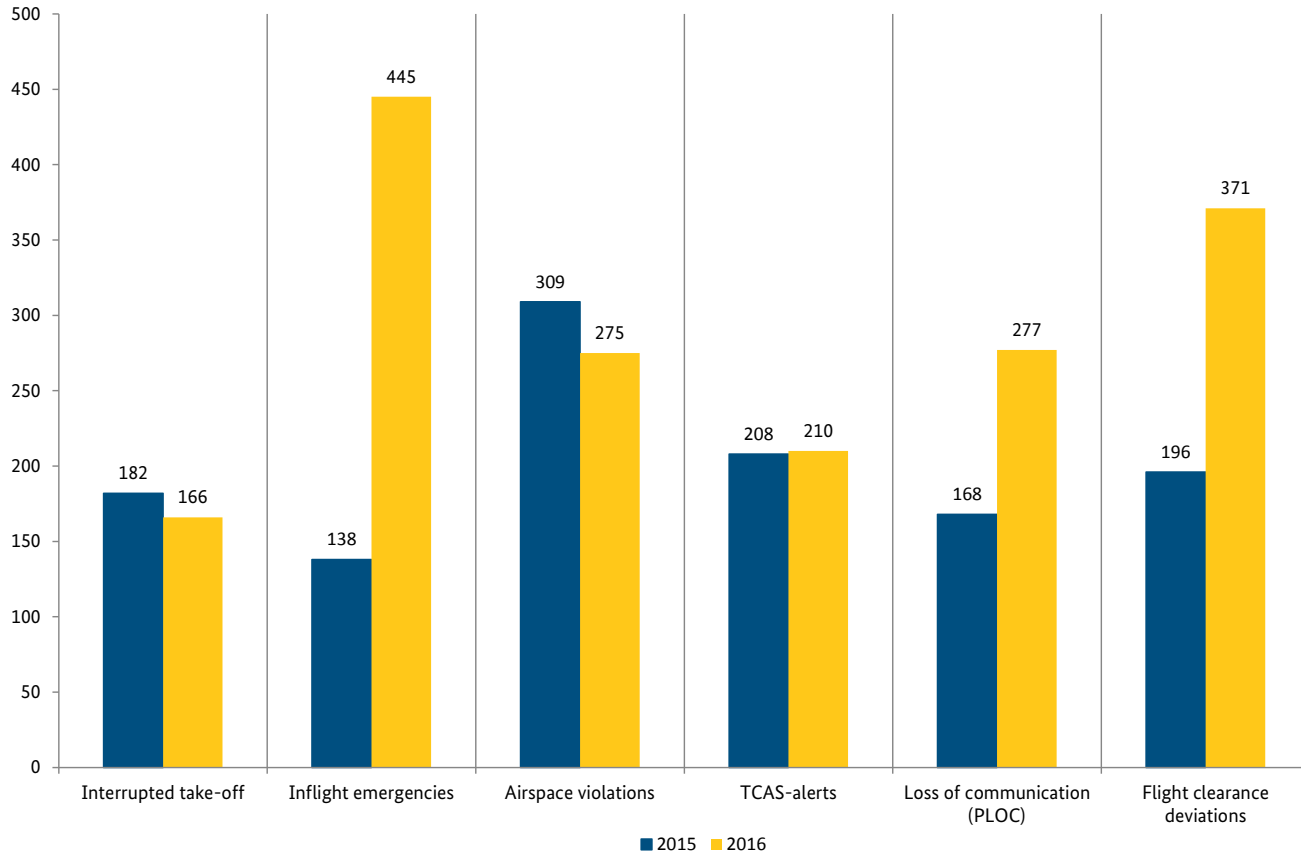
The following diagrams show the development of the annual reports about occurrences in air navigation services within the 2015/2016 reporting period.

What is noticeable here is the increase in certain types of occurrences. It was in particular the number of in-flight emergencies, bird strikes, deviations from ATC clearances and deviations from published flight procedures that more than doubled.

According to the Regulation (EU) No 376/2014, these categories of occurrences became officially subject to reporting as of November 2015. This explains the marked increase: Until then, these occurrences had only been irregularly registered by the BAF. With regard to the “in-flight emergency” occurrence category, it must also be borne in mind that this term mostly referred to medical emergencies of the passengers. These emergencies often required landing at the nearest aerodrome to obtain medical treatment for the passenger concerned. In these cases, the pilots request preferential handling from air traffic services, which is subsequently reported as an occurrence by the air traffic services unit.

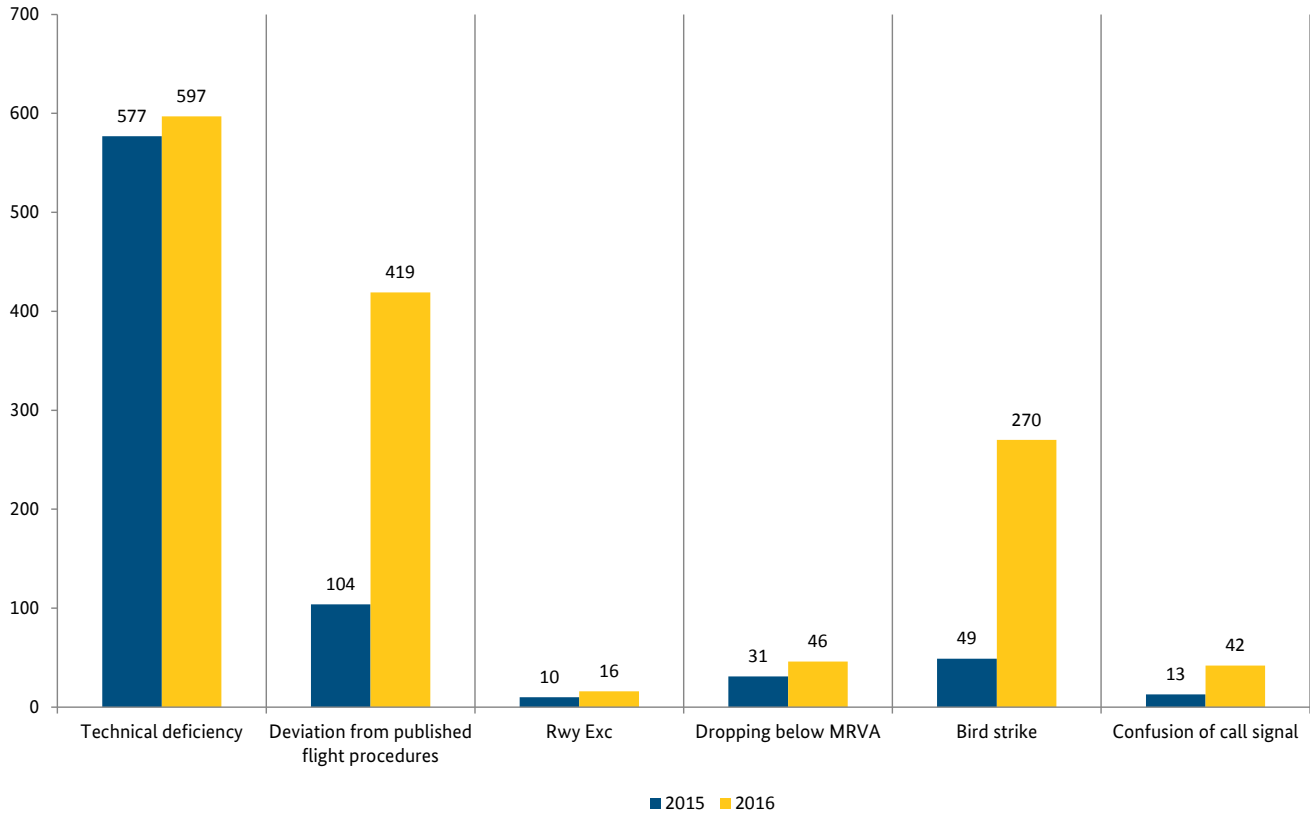
Reported air traffic incidents in 2015/2016

Source: BAF



Reported air traffic incidents in 2015/2016

Source: BAF



Air navigation services technology safety oversight (ST)

Within the 2015/2016 reporting period, the ST Department was able to increase its personnel in both sections. An organizational analysis performed at the BAF in 2015 showed the need for significant increases in personnel strength to be able to handle the additional tasks. .

IOP, flight calibration, type certification

Interoperability (IOP)

In the past two years, the Department of Interoperability performed an increasing number of audits, both at the national air navigation service providers and within the framework of the four-state supervision of the Maastricht Upper Area Control Centre (MUAC). With regard to the EC declarations of verification, the number and depth of verification of the submitted documents was also on the increase.

Subject	2015	2016
Audits of ANSPs	4	5
Audits of the MUAC	1	1

Source: BAF

Ground-Based Augmentation System (GBAS)

GBAS consists of ground stations – preferably installed on airport grounds – which improve the determination of aircraft positions on the basis of GPS (satellite) and, in the future, other systems like GALILEO, for example. The ground stations receive coordination information from the satellites, compare this information with their own position, which has been very accurately determined, calculate correction values and send them to the aircraft. The aircraft can thus calculate precise approach paths. Currently, the system is comparable to CAT-I instrument landing systems (ILS). In future, CAT-II and CAT-III landing categories shall also be possible. The BAF supervises the entry into service of GBAS ground stations by the air navigation service providers and carries out investigations in cooperation with institutes and companies in order to obtain and to expand the knowledge needed for this type of supervision.

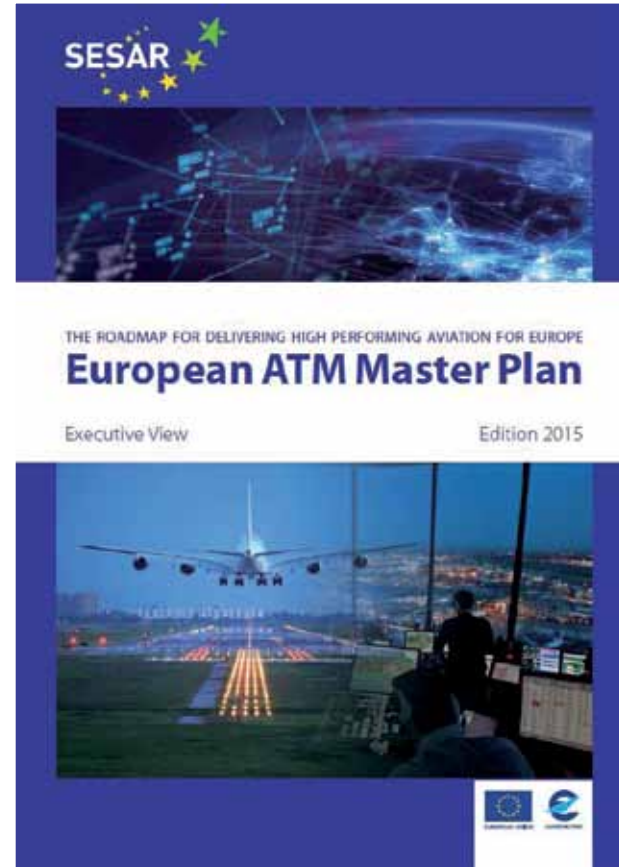
Modernisation and Replacement of Surveillance Infrastructure (MaRS)

The technology of the radar facilities currently in operation has been used for a long time and is approaching the end of its service life. Due to its age, providing spare parts is also becoming increasingly difficult. Under the project name of MaRS, the Deutsche Flugsicherung GmbH will replace about 28 radar facilities over the next few years. Existing radar facilities will be dismantled and replaced by new radar systems, which will be more powerful and

need less energy. The dismantling of facilities has repercussions on existing EC declarations of verification and the installation requires that new EC declarations of verification be issued. Due to the extent of the investigations to be carried out by the BAF, the project will be supported by the BAF within the framework of supervisory functions.

Single European Sky (SES), ATM Master Plan, SESAR deployment

The main objective of the EU's initiative to create a Single European Sky (SES) is the improvement of the overall efficiency of air traffic in Europe, including a decrease in costs and an increase in capacity. The SESAR programme constitutes the technological supporting pillar of the SES and serves to modernize and harmonize European air navigation services systems. The technical content of the SESAR project is developed as a joint effort of the different players in the industry (air navigation service providers, airlines, airports, manufacturing industry). So far, innovation work has largely been nationally isolated; SESAR aims at centrally coordinating this work along the lines of a joint European ATM Master Plan. Concepts are implemented by the individual industry players in the context of projects; in Germany, the air navigation service providers involved in SESAR are supervised by the BAF. To acquire the necessary expertise, BAF employees actively participate in various international bodies.



The European ATM Master Plan has 126 pages

Flight inspection

Aeronautical radio navigation facilities, radio beacons and instrument landing systems as well as their components must be regularly checked for accurate functioning, also from the air by calibration aircraft. Flight inspections are also necessary to validate new approach and departure procedures at aerodromes by checking whether or not they are flyable and whether the navigation facilities in them can be used. These inspections are carried out for the air navigation service providers by a few specialized contractors.

The Department of Flight Inspection supervises air navigation service providers and the contractors that carry out flight inspections to support air navigation services. In the process, it is checked whether the flight inspection equipment used complies with specified requirements and whether the inspections have been documented in a transparent and reproducible manner. In 2015, a new contractor entrusted with flight inspections for the first time was examined to determine whether the demands on this contractor had been complied with and to issue the corresponding certification. In 2016, three flight inspection contractors were audited.

Demands on flight inspection companies and air navigation service providers

To ensure the necessary quality of flight inspection services, demands on the equipment, the type and performance of flight inspections as well as the competence of flight inspection personnel were developed and specified. So far, these demands are still laid down in administrative regulations that serve as an interim arrangement and that can be traced back to demands from before the establishment of the BAF. In future, these demands will be laid

down in a flight inspection services regulation and a flight inspection implementing regulation whose draft is prepared by the BAF. The responsibility for the enactment of the new regulation rests with the Federal Ministry of Transport and Digital Infrastructure (German acronym: BMVI).



Total view of a flight inspection aircraft

To optimize the flight inspection process and to technically improve the quality of the measured data, the BAF has cooperated with the Physikalisch-Technische Bundesanstalt (PTB), the Federal Standards Laboratory, for five years now, since October 2012. It was also within the framework of this cooperation that the PTB developed a field strength measuring probe for the domain of flight inspections that detects the electrical field strength of radio navigation facilities. With this measuring probe, a reference volume is measu-

red that can be used to validate the calibration performed by the flight inspection company. This has created the prerequisite for verifying the correct calibration of measuring devices and calibration aircraft according to the DIN EN 17025.

Type certification

One focal point of the Department of Type Certification was the amendment of the Air Navigation Services Type Certification Regulation (Flugsicherungsmusterzulassungsverordnung/FSMusterzulV). The BAF submitted the new version to the BMVI to improve the execution of the type certification procedure.

In addition to the new version of the FSMusterzulV for air navigation services devices, the draft of the Air Navigation Services Interference Protection Regulation (Flugsicherungsstörungsschutzverordnung/FSStörSchutzV) was submitted to the BMVI. This Regulation governs the implementation of special measures of the BAF to protect air navigation services facilities and equipment against electromagnetic interference through radio facilities. These radio facilities can operate in the same frequency bands allocated to aeronautical radio communication for utilization and can thus cause interference. The relevant professional groups have already been called in to comment on the new version and the new version of the FSMusterzulV has already been checked by the Federal Ministry of Justice and Consumer Protection (BMJV).

In this context, the BAF comprehensively explained the need for the drafts of the FSMusterzulV and the FSStörSchutzV and their compliance with European law to the BMVI and the EU.

The BAF is also responsible for regularly updating the type certification requirements and publishing them in the Nachrichten für Luftfahrer (NfL). The NfL promulgating the demands on the type certification of multilateration facilities as distance finding stations for air navigation services was published.

The following NfL have been revised in a manner that allows publication in 2017:

- Bekanntmachung über die Anforderungen zur Musterzulassung von VHF-Funkpeilern im Frequenzbereich 117,975 – 137 MHz und Einführung des 8,33-kHz-Rasters,
- Bekanntmachung über die Anforderungen zur Musterzulassung von NAV-Anlagen,
- Bekanntmachung über die Anforderungen zur Musterzulassung von Radar-Anlagen.

Frequency management and protection of facilities

New era in frequency management

For its aeronautical radio communication, civil aviation uses exclusive frequencies and their corresponding radio stations on the ground. In 2015 and 2016, the BAF's frequency management processed almost 1,200 requests for the allocation of a frequency in these areas and answered them with the corresponding frequency allocation. For the administration of the host of protected frequencies, the new FLUFUS software was introduced to the BAF at the beginning of July 2016. After more than two years of intensive development and several test phases, the project was successfully

completed and transferred to the live system. Since then, the system is operationally used in frequency management.



An aircraft lands over an antenna used for monitoring the correct functioning of the localizer

FLUFUS is used for the administration of all radiotelephony, data, navigation and distance finding stations as well as experimental radio stations in the frequency bands of civil aviation. To this end, the BAF carries out international coordination and specifies operating parameters. What coordination refers to in this context is the fact that the use of frequencies is harmonized to avoid mutual interference by radio facilities.

With FLUFUS, the frequency managers of the BAF can access current data and chart work processes chronologically. It is envisaged that applicants will have the possibility to enter their application data directly into FLUFUS to meet data quality requirements

and to avoid mistakes when transferring data from applications on paper into the electronic data processing system. This constitutes a major contribution to modernizing administration.

8,33 kHz in Europe - changing the channel raster

An important issue affecting frequency management is the changeover of the channel raster in VHF aeronautical radio communication (117.975-137 MHz) from 25 kHz to 8.33 kHz, which is done throughout Europe. It is binding on all member states and governed by the Commission Implementing Regulation (EU) No 1079/2012 (NfL 1-442-15). The critical stage in aeronautical radio communication has already begun. According to article 4 (5) of the Implementing Regulation, the radiotelephony sets of all ground radio stations (NfL 2-151-15) – with the exception of those of air navigation service providers – and all aircraft must be converted by 31 December 2017. To this end, the BAF has begun a campaign in 2016 to inform airspace users of the need to carry out the conversion in a timely manner.

In addition to the conversion, the holders of frequency allocations must apply to the Federal Network Agency (BNetzA) for a change by 31 December 2018 (NfL 1-442-15); this is required according to article 6 (10) of the Implementing Regulation. The corresponding applications for ground radio stations are available for download on the homepage of the BNetzA under www.bundesnetzagentur.de (Telekommunikation > Unternehmen/Institutionen > Frequenzen > Spezielle Anwendungen > Flugfunk). Until the end of 2016, only a small proportion of the frequency users concerned has applied for a frequency change. The conversion will be monitored by the IOP Department within the framework of regular consultations and in-

quiries as well as audits at the air navigation service providers to be supervised.

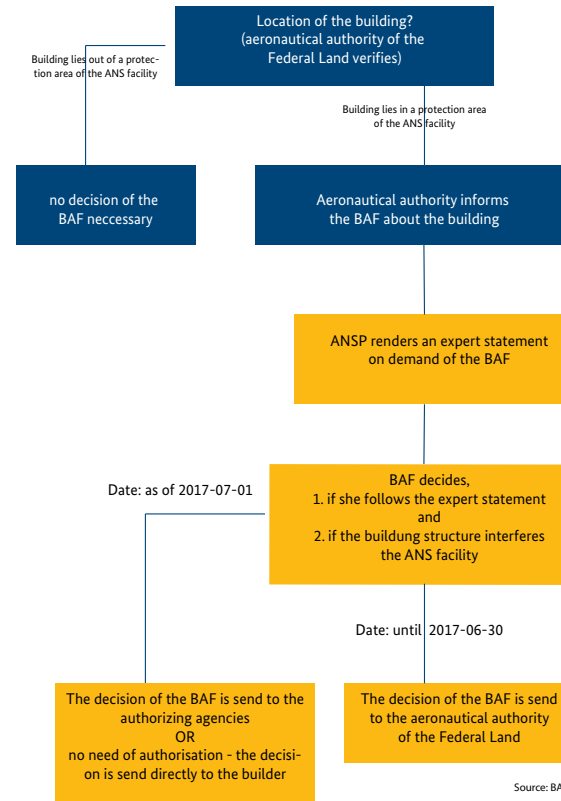
Protection of facilities

During the reporting period, the Facilities Protection Department registered an increase in the processed applications for the construction of wind energy turbines within facility protection zones from 196 (2015) to 268 applications (2016). This was accompanied by legal disputes about decisions pertaining to the protection of facilities according to article 18a of the Aviation Act on all levels of administrative jurisdiction. What needs to be stressed here in particular is the ruling of the Federal Administrative Court (BVerwG) of April 2016. According to this ruling, interference exists if a construction impairs the functioning of an air navigation services facility to an extent that the safe, orderly and smooth handling of air traffic is affected (BVerwG 4 C 1.15).

In addition, the administrative procedure stated in article 18a of the Aviation Act 2016 has been adapted by the 15th Amendment to the Aviation Act. According to the new regulation, the BAF will inform the authorizing agencies directly about its decisions as of July 2017. If the construction project does not need to be authorized, the decisions of the BAF will be directly sent to the builders.

To settle the issue of whether or not a planned building is located within an area in which interference with air navigation services facilities is to be expected (article 18a Aviation Act), the BAF makes an internet platform available to the aviation authorities of the federal states.

Administrative procedure according to § 18a LuftVG

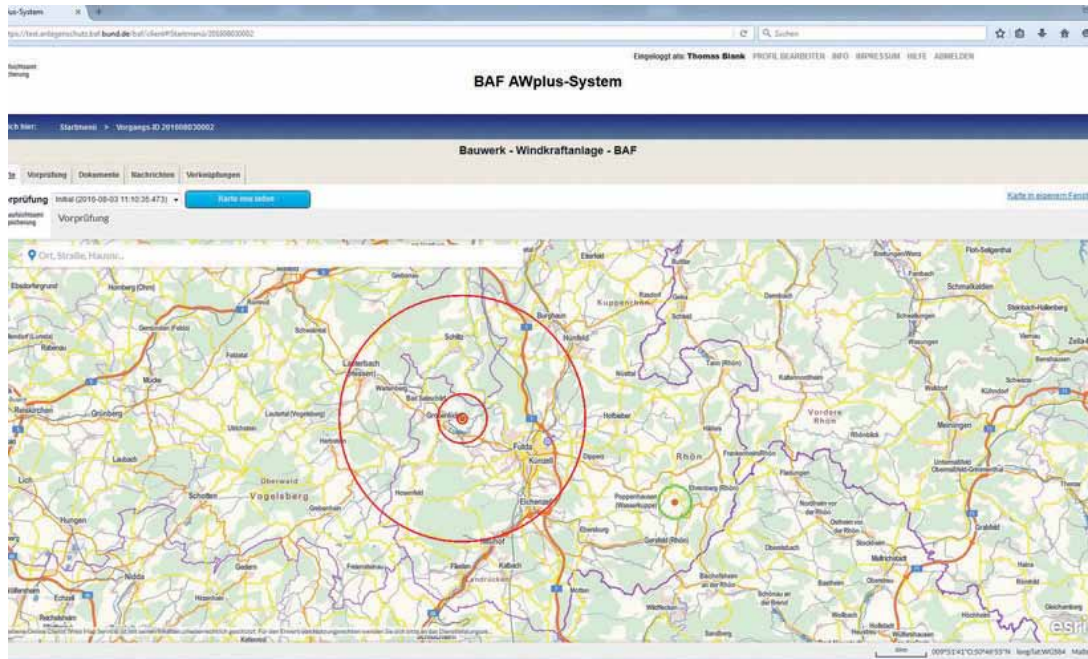


The diagram shows the administrative procedure according to article 18a of the Aviation Act

This application (AWPlus) introduced in 2012 for inquiries pertaining to article 18a of the Aviation Act was thoroughly revised in 2016 and is available for use by the aviation authorities of the federal states; it has now new features like the chart-based acquisition and display of buildings (in addition to the numerical input of

coordinates). Moreover, the web tool offers the possibility to carry out the entire communication relative to the case in a uniform and clear manner.

The figure shows a screenshot of the AWplus application of the BAF



Airspace, flight procedures and Law (LFR)

Airspace and flight procedures

Court cases about the design of flight procedures

In 2015 and 2016, complaints of three nature conservation associations were tried by the competent courts. In January 2015, the Higher Administrative Court of Berlin-Brandenburg tried a complaint of the Naturschutzbund Deutschland (NABU) against the departure procedures for the future Berlin-Brandenburg Airport (BER) specified by the BAF in 2012, which run in the vicinity of Lake Rangsdorf.

In June 2015, the so-called Wannsee Route – also a departure route from BER – was the subject of an oral hearing before the same court. The lawsuit had been filed by Natura Havel e.V.

In September 2016, there was an oral hearing before the Higher Administrative Court of Bautzen about a complaint against the departure procedures from Leipzig/Halle Airport known as “kurze Südabkürzung“ (southern shortcut). It was the Grüne Liga Sachsen that had filed the lawsuit against it. With the lawsuits, all three associations claimed a violation of their participation rights by the BAF within the framework of the corresponding flight procedure design processes. The legal issue to be settled consisted of whether it would have been necessary to involve the nature conservation associations in the procedure design process in accordance with article 63 paragraph 2 of the Federal Nature Conservation Act.



The Federal Administrative Court in Leipzig

This was denied by the courts in all three complaint proceedings. In all cases, the rulings were essentially attributable to the fact that the flight procedures will not have any repercussions on the nature conservation areas according to the Birds Directive or the Flora-Fauna-Habitat Directive of the EU that had not already been the subject of the conservation law examination within the framework of the planning permission or to which the standards of this examination can at least not be applied. Consequently, the legal proceedings about conservation law issues in connection with flight procedure design have had a positive outcome for the BAF.

In addition to the complaints of the nature conservation associations, the Federal Administrative Court (BVerwG) gave an important ruling about the so-called “Südumfliegung“ (southern bypass) at Frankfurt Airport in December 2015. It repealed the decision of the Hessian Higher Administrative Court in Kassel of 2013 and referred the legal dispute back to the Higher Administrative Court for a retrial and decision.

The BAF had established the Südumfliegung (southern bypass) in 2011. Several communities in Hesse and Rhineland-Palatinate as well as private persons had filed a lawsuit. By means of the Südumfliegung, aircraft taking off from the system of parallel runways (centre runway 25C and southern runway 25L) to the west and heading for destinations in the northwest and north are initially vectored in a southern direction. Following a right turn, the aircraft pass the city centres of Mainz and Wiesbaden to the east when flying in a northerly direction or fly to the southwest of Mainz when heading in a north-westerly direction. Thus, the towns immediately to the west of the airport are skirted and the noise molestation caused by departing aircraft is greatly reduced.

The retrial in Kassel will serve to clarify whether or not another departure procedure equally suited to handle existing traffic would be more favourable in terms of the noise molestation imposed on the plaintiffs.

Inquireies and complaints from citizens

This category covers inquiries from citizens as well as complaints about aircraft noise or requests in accordance with the Freedom of Information Law (IFG) and the Environmental Information Law (UIG). Following a total of 167 cases processed in 2014, the number

of petitions submitted to the BAF rose to 419 in 2015 and as many as 523 in 2016.

Complaints and inquiries focus above all on Germany’s three major international airports, i.e. Frankfurt, Berlin and Hamburg. Here, the numbers greatly diverged in 2015 and 2016, which can be seen in the table below. The number of all other petitions submitted to the BAF by citizens also drastically increased.

Table 7: Inquiries and complaints from citizens in 2015/2016 (including requests in accordance with the Freedom of Information Law and the Environmental Information Law)			
Town	2015	2016	Change
Hamburg	184	262	+ 42 %
Frankfurt a.M.	175	174	- 0,6 %
Berlin	12	6	- 50 %
Other	48	81	+ 69 %
Total	419	523	+ 25 %

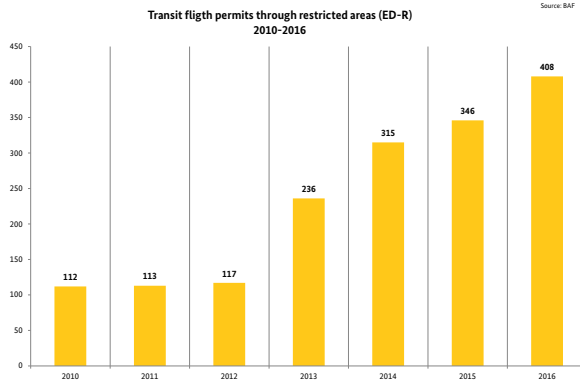
Source: BAF

Transit flight through restricted areas (ED-R)

In accordance with article 17 paragraph 2 of the Aviation Act, the Federal Ministry of Transport and Digital Infrastructure (BMVI) establishes areas in which transit flights are only admissible with a special permit. These restricted areas (ED-R) serve to avoid danger to public safety and order, especially air safety. However, they can also serve to protect ground facilities, for example nuclear plants. Moreover, restricted areas can also be established above regions

that pose a threat to aviation. It is for this reason that restricted areas are routinely established above military training areas. The airspace above the Wartburg and the government district in Berlin are further examples of specific restricted areas.

Restricted areas can be established temporarily or permanently and they are promulgated in the corresponding aeronautical publications. The Section of Airspace and Flight Procedures in the LFR Department is responsible for authorizing transit flights through restricted areas. The number of requests has been on the increase for years. This increase in requests is above all due to the rising number of flights with unmanned aerial systems (UAS).



The diagram shows the transit flight permits through restricted areas (ED-R) granted by the BAF from 2010 to 2016

Law and sanctions

Legal proceedings in facility protection

The Section of Law and Sanctions of the BAF represents the departments in the event of legal proceedings. In the field of facility protection, legal proceedings increasingly led to rulings in the 2015/2016 reporting period, also by courts. Normally, the BAF is involved in these proceedings as an observer. However, there were also court cases in which the BAF acted as plaintiff.

The first higher court decision in facility protection by the Higher Administrative Court of Lüneburg was confirmed in April 2016 by the supreme court decision of the Federal Administrative Court. In it, the Court in Leipzig acknowledges on principle the BAF's regulatory scope with regard to decisions according to article 18a of the Aviation Act (decision 4. C 1.15 of the Federal Administrative Court of 07 April 2016).

This corroborated the decision-making practice of the BAF with regard to the possible interference with air navigation services facilities by wind power plants. In addition, the Federal Administrative Court clarified that decisions according to article 18a of the Aviation Act do not constitute administrative acts.

Before the Administrative Court of Trier, the BAF made a formal complaint against the approval of a wind power plant in accordance with immission control legislation. The administrative district against which legal action was brought had given its approval by means of a redress procedure in spite of a contrary decision by the BAF. Before, the BAF had stated in its decision that the wind power plant can impair the air navigation services facility.

The Administrative Court repealed the approval as requested (ruling of 18 January 2016 – 6 K 1669/15.TR). Moreover, it was made clear that the decision of the BAF is binding on the approving agency. Since this fact had been flouted, the Administrative Court took the view that the approval was unlawful and must be repealed. Whether the decision that the project could impair the air navigation services facility had been taken lawfully could be reviewed within the framework of an action for the issue of an administrative act on the part of the project developer involved, if necessary. Notwithstanding this review, the defendant was not entitled to flout this decision, which is why the redress decision is unlawful.



The Doppler VHF omnidirectional range (DVOR) Ried for air navigation services near Pfungstadt (Hesse)

Regulatory offences affecting airspace

Among other things, the BAF is tasked with prosecuting regulatory offences in air traffic in connection with the violation of rules about the piloting of aircraft, flights according to visual or instrument flight rules, flight procedures and the corresponding regulations and orders by air traffic control. The basis for this is article 63 no 4 of the Aviation Act. The Section of Law and Sanctions of the LFR Department starts fining procedures if there is initial suspicion of the existence of an administrative offence.

The specific regulatory offences subject to this prosecution are stated in article 44 of the Aviation Regulation in connection with article 58 paragraph 1 no 10 of the Aviation Act. In the field of air traffic, criminal traffic law and traffic offence law also serve above all to ensure traffic safety.

The 2015 statistics shows a relatively stable situation with a total of 740 prosecuted regulatory offences. What can be noted, however, is the fact that there are more and more offences by flights without air traffic control clearance in the past years, i.e. flights violating airspaces classed as “C” and “D” (both control zones and other class D airspaces). Since 2009, the responsibility for this rests with the BAF, which has consequently accumulated its own data material. While there were fewer than 200 prosecuted offences in 2009 and 2010, this number continually rose in the subsequent years and has reached a total of 299 in 2015. The following table provides an overview of the data for 2015.

Table 8: Regulatory offences prosecuted by the BAF in 2015, by type of offence*

Type of offence	Number
Flights without air traffic control clearance (violations of class C airspaces, control zones and other class D airspaces)	299
Deviations from standard approach/departure routes)	143
Loss of continuous listening watch	121
Other	62
Violations during movements on the ground	57
Deviations from the most recent clearance	30
Entries into restricted areas (only in the event of violations of an enforceable condition of a transit flight permit, otherwise a criminal offence and not within the area of jurisdiction of the BAF))	28
Total	740

Source: BAF

* Numbers from 2016 were not available at the time of the editorial deadline



View across clouds from an aircraft

Central Administration (ZV)

Organization

Organizational review shows the need for more staff

Having been newly established in 2009, a review of the organizational and staffing plan of the BAF was called for after five years.

In the public sector, organizational reviews are performed in situations like these. The Federal Institute for Administrative Services (BAV) carried out this review for the entire Office.

The result of the review in September 2015 did not only confirm the existing posts but showed that more personnel were needed to perform the assigned tasks. Due to compelling statutory requirements, scaling down the current workload is not an option. Outsourcing individual tasks or dispensing with some of them altogether is not feasible, either.

In addition, the European Union has enacted new implementing orders since the first regulations on the Single European Sky (SES) in 2004. These orders assign more responsibilities to the European member states and their national supervisory authorities and, consequently, more specific tasks with regard to the implementation of the SES.



An auditor of the BAF inspecting the tower of Düsseldorf Airport

Personnel

Staff augmentation

In the past two years, the Personnel Department had to manage an agreeable staff augmentation.

The organizational review in 2015 showed that the BAF needs another 18.5 posts on top of those granted to it at the time of its establishment. Admittedly, not all of them had been approved for the BAF's budget by the end of 2016 and filling them completely was

therefore not possible. However, the BAF has come a long way towards its goal of performing its tasks at full personnel strength. At the end of 2016, the BAF had a total of 86 employees – 41 of them women and 45 men.

The BAF is also committed to the education of trainee lawyers. On average, up to three of them can do their mandatory internships in the BAF's administration per year. In future, the Airspace, Flight Procedures and Law Department as well as the Central Administration Department will continue to offer in-house training to law school graduates studying towards their bar examinations.

With regard to the recruitment of personnel, the BAF is assisted by the Federal Institute for Administrative Services (BAV). Being a service provider within the area of jurisdiction of the Federal Ministry of Transport and Digital Infrastructure (BMVI), its representatives attend recruiting fairs and provide information about the wide range of tasks and the vacancies to be filled in the agencies subordinate to the BMVI. An electronic application system greatly facilitates the processing of applications for both the candidates and the agencies that offer vacancies.

Occupational safety and health

Changes to occupational safety and health regulations made it necessary to re-examine fire protection facilities. In the wake of this re-examination, the fire protection regulation of the BAF was adapted to the new standards of the DIN 14096. As a supplementary measure, the safety and health protection signs were exchanged for the new pictograms that are uniform throughout the EU, which

was done on the basis of the Directive 92/58/EEC and technical workplace guidelines.

In the reporting period, preparatory measures for the introduction of the Handlungshilfe 4.0 (decision-making aid) were also initiated. The Handlungshilfe 4.0 serves to evaluate workplace hazards. By means of this aid, the statutory requirements of the Occupational Safety and Health Act can be evaluated and implemented in operational situations. Among other things, the specifications of the Handlungshilfe 4.0 are the basis of the regularly scheduled inspections of the Unfallversicherung Bund und Bahn (UVB) (accident insurance for employees of federal authorities and the Deutsche Bahn) in its capacity as the competent professional association of the BAF.

Once a year, every employee of the BAF must be briefed on occupational safety and health. As early as in 2014, web-based training (WBT) was introduced to the BAF. By means of this training, the briefing can be carried out directly at the workplace. Schooling in the form of classroom training for all employees is thus not necessary. The web-based training requires the employees to study a range of assignments, for example about first aid or fire protection. These assignments can be worked through individually and at one's own pace. As the WBT is made available by an external provider, all amendments made by legislators or trade associations are incorporated in the WBT. As a result, the instruction tools are always up to date.

Following the creation of the BAF's intranet, a lot of content regarding occupational safety and health was edited and made available at a central site. By doing this, every employee can now quickly ac-

cess information. Moreover, finding relevant material is facilitated by keyword searches.

Prevention of corruption

The prevention of corruption within the BAF's area of operations is of major importance. Making the employees aware of the issue and taking preventive measures is at the forefront of considerations. This is done particularly with a view to protecting the employees from the risk of corruption while performing their tasks. In many cases, gateways to corruption are not discerned or recognized in time. To counter this, a contact person not bound by instructions has been appointed for the Office. Among other things, this person is involved in advanced training courses and ensures awareness and transparency among the employees.



By means of in-house training, the employees of the BAF are regularly made aware of the problem of corruption and how to prevent it

Military Air Traffic Services Liaison Office (VBB)

Civil-military cooperation in practice

The Military Air Traffic Services Liaison Office (German acronym: VBB) exists since 2006 and was subordinate to the Bundeswehr Air Traffic Services Office (German acronym: AFSBw) until the disbandment of the latter in 2014. The VBB had already been established before the foundation of the BAF on 04 August 2009 on the basis of a ministerial agreement between the Federal Ministry of Transport and Digital Infrastructure (BMVI) and the Federal Ministry of Defence (BMVg).

Since the time when the activation staff took up their work and throughout the establishment and build-up of the BAF, the VBB has acted as a military link to the civil federal agency. It serves to address all civil-military issues pertaining to the supervision of air navigation services organizations in a cooperative manner. Consequently, the VBB is housed in the office building of the BAF.

In the reporting period, it was above all the year 2015 in which major changes occurred. Supervision of the VBB was transferred from the AFSBw to the newly established Bundeswehr Aviation Office (German acronym: LufABw). This transition entailed new structures and a new framework agreement with the BAF.

The Bundeswehr Aviation Office takes up its work

In the presence of Federal Minister of Defence Ursula von der Leyen, a solemn ceremony to activate the Bundeswehr Aviation Office was held in Köln-Wahn on 07 January 2015. Major General Dr. Ansgar Rieks, who is in charge of the new Office, stressed the

spirit of innovation that could be felt during the build-up. For the upcoming tasks, a proactive and hands-on approach would be needed.

The decision to establish a national military aviation authority, in which all the tasks pertaining to safe military flight operations are pooled, was already made in the last legislation period and incorporated in the coalition agreement. This pooling of structures and activities in one agency was achieved with the official activation of the Bundeswehr Aviation Office, a military unit directly subordinate to the Federal Ministry of Defence and under the administrative control of the Chief of Defence. This Office performs a wide range of tasks, in particular:

- Type approval and certification for aircraft and aeronautical equipment of the Bundeswehr,
- Rules for military flight operations in Germany,
- Approval of national and international aeronautical companies and organizations as well as licensing of personnel,
- Supervision of military air navigation service providers, also at military aerodromes co-used by civil aviation, including licensing.

Being the national supervisory authority for civil air navigation service providers and their personnel in Germany, the BAF has closely cooperated with the Bundeswehr Aviation Office since its establishment. The build-up of this Office on its premises in Colo-

gne will continue until the end of 2017; by then, it will have approximately 400 employees.

In its capacity as a military aviation authority (MAA), the Bundeswehr Aviation Office works both nationally and internationally. Consequently, this higher federal authority was designated as the national military air navigation services supervisory authority with the Commission of the European Union in accordance with the SES directives.



Activation of the Bundeswehr Aviation Office with Federal Minister Ursula von der Leyen (right), Chief of Defence General Volker Wieker (centre) and the director of the Bundeswehr Aviation Office, Major General Dr. Ansgar Rieks (left) in Cologne-Wahn on 7 January 2015

Framework agreement between the BAF and the LufABw

On 20 July 2015, the framework agreement between the Federal Supervisory Authority for Air Navigation Services and the Bundeswehr Aviation Office was signed during a ceremony in Langen. The director of the BAF, Prof. Dr. Nikolaus Herrmann, and the director of the LufABw, Major General Dr. Ansgar Rieks, signed the document about future cooperation in the presence of representatives of both agencies. The framework agreement specifies the principles that govern the joint performance of sovereign tasks in national and European air navigation services. The signatures to the agreement provide a solid foundation for future civil-military cooperation in the tradition of the excellent mutual assistance between the BAF and the Bundeswehr Air Traffic Services Office (AFSBw).

In their welcome addresses, both directors stressed the importance and value of coordinating the functional supervision of the respective air navigation service providers in the Federal Republic of Germany. Representing interests vis-à-vis institutions at European level, especially with regard to the Functional Airspace Block Europe Central (FABEC), is only possible in a meaningful way if the BAF and the LufABw closely coordinate their positions.



Prof. Dr. Nikolaus Herrmann (left) and Major General Dr. Ansgar Rieks (right) after having signed the framework agreement in Langen (Hesse)

The agreement governs coordination between the BAF and the LufABw in all areas of joint interest and specifies the role and the scope of duties of the VBB. The following fields of activity are of particular relevance:

- Certification and supervision of air navigation service providers (audits and inspections)
- Training and licensing of air navigation services personnel
- Technical air navigation services

- Flight inspection
- Flight procedure design
- Protecting air navigation services facilities against interference according to article 18a of the Aviation Act
- Aeronautical data management and aeronautical publications
- Lawmaking (national and European) as well as
- cooperation within the framework of the Single European Sky (SES).

To this end, the agreement specifies in detail the responsibilities and areas of jurisdiction of both agencies. In addition to the functional and legal supervision, it is in particular the safety supervision of the civil air navigation service providers active in the Federal Republic of Germany that is thus exerted by the BAF. This task is performed in keeping with the EU regulations about the Single European Sky (SES).

Thus, the Military Air Traffic Services Liaison Office (VBB) at the BAF is indeed remarkable. Not only because it is run jointly by both agencies in the office building of the BAF but because it is the only organizational unit which was transferred unchanged to the new LufABw after the disbandment of the AFSBw. On principle, cooperation between the BAF and the LufABw is done completely via the VBB. Its central function is to provide intensive functional support for the coordination process between the two supervisory agencies.

Press and Public Relations

Faires and events

In the past two years, the BAF again presented itself at the aviation fairs in Germany. At both the 2015 and 2016 AERO in Friedrichshafen on Lake Constance, it was noted that the BAF is known in general aviation after having been active for six years. The personnel at the fair stand was asked about a wide range of topics. The presence at the ILA in June 2016 also attracted attention – even though the visiting public is different since the ILA is aimed above all at industry representatives. For the general public, the BAF participated again in the open day of the Federal Government in Berlin. In summery weather, visitors converged on the BMVI to find out about air navigation services, but also about other areas of activity of the Ministry, which deals with transport by water, rail, road and air.



Research aircraft ZERO-G of the German Aerospace Centre (DLR) at the ILA in 2016



The exhibition halls of the Friedrichshafen Trade Fair seen from a helicopter

Press relations

Press relations were fostered on several occasions. For example, the director of the BAF and the Press and Public Relations Department were again invited to the ARD Hauptstadttreff, a meeting providing an opportunity for exchanging views for Berlin's journalists, politicians and representatives of federal agencies or other institutions and associations. In 2015, the BAF participated in the Hamburg Media Night for the first time. Hamburg Airport had invited journalists to this event to discuss topical issues in aviation.

Abbreviations

A

ACC – Area Control Centre
 AeMC/AMC – Aero-medical Centre
 AFIS – Aerodrome Flight Information Service
 AFSBw – Bundeswehr Air Traffic Services Office
 AIS – Aeronautical Information Services
 AME – Aero-medical Examiner
 ANS – Air Navigation Service
 ANS – Air Navigation Service Provider
 ASM – Airspace Management
 ATC – Air Traffic Control
 ATCO – Air Traffic Controller
 ATFM – Air Traffic Flow Management
 ATM – Air Traffic Management
 ATS – Air Traffic Services
 ATSEP – Air Traffic Safety Electronics Personnel

B

BAF – Federal Supervisory Authority for Air Navigation Services
 BAV – Federal Institute for Administrative Services
 BMJV – Federal Ministry of Justice and Consumer Protection
 BMVg – Federal Ministry of Defence
 BMVI – Federal Ministry of Transport and Digital Infrastructure
 BNetzA – Federal Network Agency
 BVerwG – Federal Administrative Court

C

CNS – Communication, Navigation, Surveillance

COM - Communication

COC – Certificate of Competence

CTR – Control Zone/Centre

D

DIN – German Institute for Standardization/German industry standard

DVO – implementing regulation

E

EASA – European Aviation Safety Agency

EBV – electronic application system

ECCAIRS – European Co-ordination Centre for Accident and Incident Reporting Systems

ED-R – Europa Deutschland Restricted Area

EG – European Community

eTOKAI – electronic Toolkit for ATM Occurrence Investigation

EU – European Union

EUROCONTROL – European Organization for the Safety of Air Navigation

F

FABEC – Functional Airspace Block Europe Central

FS – air navigation services

FSMusterZulV – Regulation about the type, extent, quality, certification, identification and operation of air navigation services facilities and equipment

FSPersAV – Regulation on ANS Personnel and their Training

FSSStörSchutzV – Air Navigation Services Interference Protection Regulation

GALILEO – European global system for satellite navigation and timing (under development)

GBAS – Ground Based Augmentation System

GM – Guidance Material

GPS – Global Positioning System

I

IFG – Freedom of Information Law

ILS – Instrument landing system

K

kHz – Kilohertz

L

LBA – Federal Office of Civil Aviation

LiMa – Licence management database of the BAF

LufABw – Bundeswehr Aviation Office

LuftVG – Aviation Act

LuftVO – Luftverkehrsordnung (Aviation Regulation)

M

MAA – Military Aviation Authority

MET – Meteorological services for air navigation

MRVA – Minimum Radar Vectoring Altitude

MUAC – Maastricht Upper Area Control Centre

N

NAV – Navigation

NfL – Nachrichten für Luftfahrer

O

OVG – Oberverwaltungsgericht (higher administrative court)

P

PTB – Federal Standards Laboratory

R

Rwy Inc. – Runway Incursions (unauthorized leaving of a cleared take-off or landing surface)

S

SES – Single European Sky

SESAR – Single European Sky ATM Research (programme)

sFSB – other air navigation services operating personnel

STATCO – Student ATCO

STU – Staffelungsunterschreitung (conflict)

T

TCAS (RA) – Traffic Collision Avoidance System (Resolution Advisory)

TWR – Tower

U

UAS – Unmanned Aircraft Systems

UIG – Umweltinformationsgesetz (Environmental Information Act)

UVB – Unfallversicherung Bund und Bahn (accident insurance for employees of federal authorities and the Deutsche Bahn)

V

VBB – Military Air Traffic Services Liaison Office of the Bundeswehr

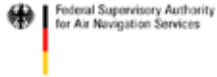
VGH – Verwaltungsgerichtshof (higher administrative court)

VHF – Very High Frequency

VO – Verordnung (regulation)

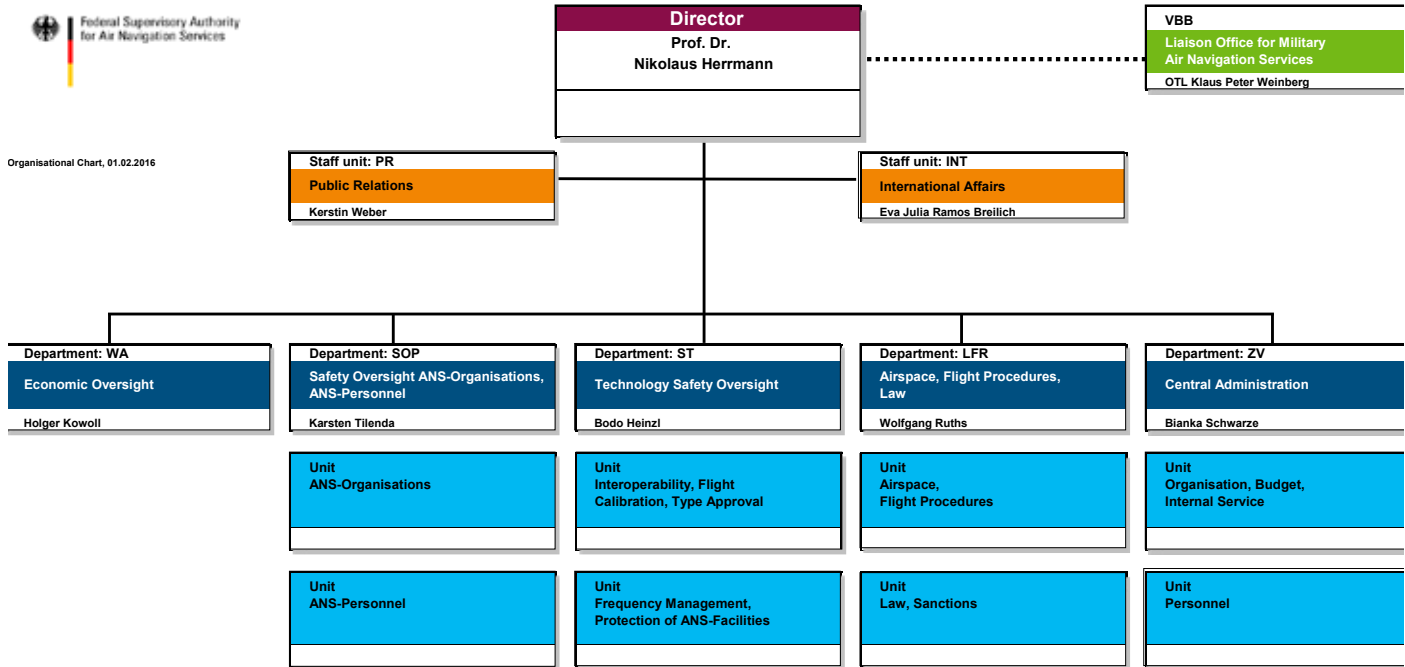
VOR – Very High Frequency Omnidirectional Radio Range

Organisation chart



Federal Supervisory Authority
for Air Navigation Services

Organisational Chart, 01.02.2016



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