

European Organisation for the Safety of Air Navigation
Central Route Charges Office (CRCO)

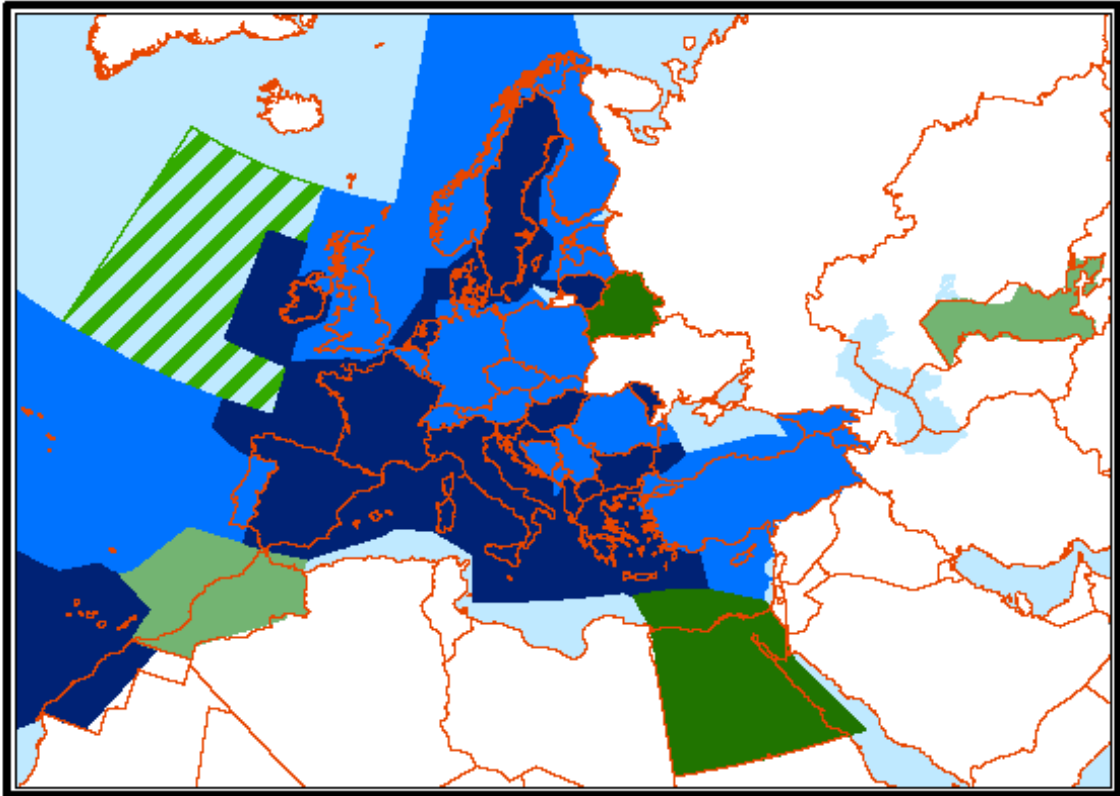
Report on the Operation of the Route Charges System in 2017

March 2018






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EUROCONTROL CHARGING ZONE 2017



The boundaries depicted are only indicative and have no official political meaning

-  States with a bilateral agreement for route charges
-  States with a bilateral agreement for route and terminal charges
-  Participating States with a bilateral agreement for terminal charges
-  Participating states
-  Shanwick Communications Charges

1. MAJOR DEVELOPMENTS IN 2017

1.1. Contracting States of the EUROCONTROL Route Charges System

In 2017, 40 States participated in the Route Charges System.

1 Belgium	11 Spain	21 Sweden	31 Albania
2 Luxembourg	12 Greece	22 Italy	32 Bosnia and Herzegovina
3 Germany	13 Turkey	23 Slovak Republic	33 Serbia
4 France	14 Malta	24 Romania	34 Montenegro
5 United Kingdom	15 Cyprus	25 Croatia	35 Lithuania
6 Netherlands	16 Hungary	26 Bulgaria	36 Poland
7 Ireland	17 Norway	27 Monaco	37 Armenia
8 Switzerland	18 Denmark	28 FYROM	38 Latvia
9 Portugal	19 Slovenia	29 Moldova	39 Georgia
10 Austria	20 Czech Republic	30 Finland	40 Estonia

Table 1 – States participating in the Route Charges System in 2017

Estonia was technically integrated into the common Route Charges System as of 1 April 2017.

1.2. Key indicators

The CRCO key indicators are presented in the table below. Details can be found in the relevant sections of the report.

Key indicators	2016	2017
Flight messages processed in millions	10.1	10.5
Flight message variation from previous year	2.6%	3.8%
Total service units in millions	143.4	153.0
Total service units variation from previous year	4.2%	6.7%
National charges billed in EUR millions	7,912	8,004
National charges billed variation from previous year	-0.8%	1.2%
Administrative charges billed in EUR millions	12.8	10.6
Total net amounts disbursed in EUR millions	7,928	7,942
Bank interest disbursed in EUR millions	0.0	0.0
Interest on late payment disbursed in EUR millions	1.9	2.9
Medium-term recovery rate (year n-1)	99.73%	99.86%
Average long-term recovery rate for the last 5 years	99.73%	99.76%

Table 2 – Key Indicators 2016-2017

1.3. Operations of the CRCO

The CRCO operates the Route Charges System on behalf of the Contracting States. Aircraft operators are charged a single amount per flight, irrespective of the number of States overflown. Bills are established by the CRCO, using flight messages sent by the Contracting States' Route Charges Offices (RCOs) and additional flight information made available via the EUROCONTROL Network Manager Directorate (NMD). The CRCO bills aircraft operators on a monthly basis, collects charges, and disburses the amounts collected to the States every week.

Billing	2016	2017
Number of bills issued for en route	43,248	42,855
Number of different airspace users billed at least once a year	6,502	6,504

Table 3 – Operations of the CRCO – Billing

During the 12 months of 2017, the CRCO counted 23,807 correctly claimed flights, which amounted to 0.24% of the total number of flights processed during this period (these figures do not take into account the retroactive corrections to weight coefficients, which are required when fleet changes are not immediately reported by airspace users). The average time processing a claim for which information was requested from Member States was 45 days.

◆ **Collection of charges**

The interest rate applicable on late payment was 9.88% per annum in 2017. The interest rate was approved by the enlarged Commission on 2 December 2016 by Decision No 146.

The medium-term recovery rate was 99.86% for the bills issued in 2016. The average long-term recovery rate for the period 2012-2016, measured on 20 February 2018, was 99.76% (see 5.3).

1.4. Update on services to stakeholders

◆ **Adaptation to Single European Sky (SES) requirements**

The EUROCONTROL Principles as amended in 2013 are consistent with Commission Implementing Regulation (EU) No 391/2013 of 3 May 2013 laying down a common charging scheme for air navigation services.

The renewed application software (see below) will provide the CRCO and the Contracting States with increased flexibility to accommodate Single European Sky requirements in the future.

◆ **Modernisation of the CRCO Information Systems**

The CRCO pursued the modernisation of its information systems in 2017. The next step will be the renewal of the CRCO financial systems covering the accounting, treasury and debt collection processes. Following the selection of a suitable ERP provider and the signature of the contract, prototyping and requirements analysis work started in Q4. This will lead to the detailed analysis, implementation, testing and deployment preparation phases in 2018.

On billing and claims, two new software releases were deployed in 2017 with a focus on operational efficiencies (matching process, duplication checks and address management), continuous service improvement, continuity and security (platform and tools upgrade) and the follow-up of States' requests. Further developments are foreseen in 2018 in terms of system-wide efficiencies, MTOW enhancements, integration with the new financial system, outsourced printing and dispatch and the follow-up of States' requests.

In parallel to these two main streams, further software clean-up is taking place to allow the CRCO to progressively transition to the Agency shared infrastructure and office automation services in 2018-2019.

◆ **Business Continuity planning**

The CRCO performed a Disaster Recovery rehearsal in 2017. The exercise covered the reinstallation of the CRCO servers and applications at the Disaster Recovery site and the activation of the working positions at the Work Area Facility site. A full billing was successfully run.

◆ **CEFA (CRCO Extranet For Airspace Users) and DATALINK services**

The secured free of charge CRCO Extranet for airspace users continued to be a great success throughout the airspace user community. The billing information published on CEFA increased from 93% to 95% of flights over the last two years. This represents 99% of route charges. Nearly 300 new CEFA agreements were signed in 2017.

◆ **ETNA (Extranet To National Administrations)**

The ETNA service is available to all Contracting States of the Multilateral Route Charges System and to non-Member States which have a bilateral agreement with EUROCONTROL/CRCO.

There are currently 132 accounts (three accounts per State: CAA, RCO and ANSP). In the month of December 2017, 19,000 pages were recorded as consulted by ETNA users.

The CRCO is currently working on a standardised set of billing reports that will allow ETNA users to easily retrieve the information they need. This will considerably reduce the high number of existing reports (more than 1,200 published each month) and give much more clarity to the ETNA reporting system.

◆ **Common Portal**

Since November 2013, the Common Portal has been the “common vehicle and repository” for the exchange and sharing of all necessary information between entities involved in the reporting exercise for en route charges and also (since 2015) for terminal charges. The Portal is based on the existing CRCO ETNA extranet already used by Member States. The Common Portal provides a common address and entry point for States to submit their data. The Member States have a single entry point to meet their regulatory obligations in an effective and efficient manner, generating economies of scale for all stakeholders. In 2017, a gateway was developed between ETNA and the ESSKY service of the European Commission to allow seamless synchronisation of the reporting to EUROCONTROL and the Commission.

◆ **Fraud**

Several campaigns have been undertaken to counter fraudulent attempts to extort funds from airspace users using fake identities and fake billing documents for air navigation charges. The CRCO is assiduously monitoring this matter and doing its utmost to keep airspace users informed of current risks.

By allowing airspace users to cross-check their billing documents against their financial situation on a secured Internet site, CEFA has proved to be a reliable media for preventing potential fraud.

◆ **Facility for payments by credit card**

In 2017, some 616 users used the credit card facility in 6,197 approved transactions amounting to EUR 6.6 million. In 2016, there were 610 users with 6,077 transactions amounting to EUR 6.4 million.

1.5. *Bilateral agreements with EUROCONTROL Member States*

◆ **Billing and collection of terminal charges**

In 2017, EUROCONTROL operated seventeen bilateral agreements relating to terminal charges with France (billing only), the Netherlands, Ireland, Denmark, Italy, Moldova, Hungary, Croatia, Slovenia, Lithuania, Sweden, Greece, Bulgaria, Spain, Malta, Albania and FYROM. Any EUROCONTROL Member State may avail of terminal charge billing and collection services.

By using the same data and tools for en route and terminal charges, the CRCO can offer billing and collection services for terminal charges at marginal costs to States and air navigation service providers. Moreover, claims submitted by users in relation to both types of charge are processed in a single, coherent operation.

◆ **Billing and collection of Shanwick communications charges**

EUROCONTROL bills and collects Shanwick communications charges in respect of flights carried out in the Shanwick Oceanic Region on behalf of the Irish Aviation Authority (IAA). In 2017 the CRCO modernised the application supporting the billing of Shanwick communications charges. The new application entered into operation on 1 January 2018.

1.6. *Bilateral and Global agreements relating to air navigation charges*

In 2017, EUROCONTROL operated three bilateral agreements relating to air navigation charges with three non-Member States, namely Belarus, Uzbekistan and Egypt.

Calculation, billing and recovery of air navigation charges on behalf of Morocco were done on the basis of a global agreement.

Air navigation charges comprise route charges and, optionally, terminal charges. In 2017, terminal charges were billed on behalf of Belarus and Egypt.

The States concerned fund all resources required to operate these agreements, without any financial contribution from EUROCONTROL's Member States.

Bilateral / Global agreements	Terminal charges (TNC)	Communications charges	Air navigation charges (ANC)
Number of bills issued	72,467	7,799	16,441
Number of different airspace users	5,349	1,746	2,091
Amounts billed EUR millions (including administrative charges for ANC)	687	22	301
Number of flights	3,775,179	495,503	1,025,039

Table 4 – Bilateral / Global Agreements

2. UNIT RATES

2.1. 2017 cost-bases and national unit rates

The national unit rates were calculated in accordance with the common "Principles for establishing the cost-base for en route charges and the calculation of the unit rates".

Table 5 sets out the cost-bases and national unit rates for 2017 as presented by States at the 109th Session of the enlarged Committee on 22-23 November 2017 (average September 2016 exchange rates).

Charging zones	National costs	Costs chargeable to users	Service units	National unit rates
Belgium-Luxembourg	177,260,922	174,042,632	2,580,000	67.46
Germany	933,436,977	910,141,389	13,122,000	69.36
France	1,336,304,997	1,293,044,874	19,300,000	67.00
United Kingdom	809,204,030	801,066,031	10,583,000	75.69
Netherlands	187,631,114	188,563,389	2,845,616	66.26
Ireland	125,722,100	121,510,996	4,113,288	29.54
Switzerland	151,269,225	155,507,220	1,490,591	104.32
Portugal Lisboa	121,117,127	125,251,977	3,122,232	40.12
Austria	206,496,000	207,220,657	2,850,000	72.71
Spain-Continental	624,573,119	646,500,420	9,018,000	71.69
Spain-Canarias	99,238,891	89,349,160	1,531,000	58.36
Portugal Santa Maria	46,010,303	43,835,190	4,387,946	9.99
Greece	155,817,991	131,914,006	4,404,929	29.95
Turkey	472,134,555	416,258,800	14,875,023	27.98
Malta	20,694,940	16,534,383	880,000	18.79
Italy	711,992,044	736,569,620	9,207,393	80.00
Cyprus	55,916,691	50,003,655	1,457,140	34.32
Hungary	96,108,200	85,319,302	2,413,812	35.35
Norway	114,359,334	114,110,129	2,438,992	46.79
Denmark	99,922,360	96,086,325	1,589,000	60.47
Slovenia	33,870,218	33,218,722	514,217	64.60
Romania	161,636,463	141,588,024	4,219,063	33.56
Czech Republic	116,439,781	114,184,784	2,717,000	42.03
Sweden	205,980,067	202,826,046	3,341,000	60.71
Slovak Republic	63,011,088	62,307,312	1,186,000	52.54
Croatia	92,215,699	83,608,089	1,808,000	46.24
Bulgaria	112,193,784	92,516,308	3,439,000	26.90
FYROM	14,173,115	14,161,559	272,000	52.06
Moldova	3,665,287	3,665,287	63,500	57.72
Finland	46,403,000	46,500,885	827,000	56.23
Albania	22,347,442	22,472,414	453,000	49.61
Bosnia and Herzegovina	39,530,364	39,354,679	910,400	43.23
Serbia-Montenegro-KFOR	79,613,848	74,321,749	2,165,549	34.32
Lithuania	24,186,978	23,313,414	524,877	44.42
Poland	188,105,555	184,742,073	4,299,929	42.96
Armenia	4,176,479	4,741,789	119,993	39.52
Latvia	23,902,000	23,175,875	844,000	27.46
Georgia	20,818,554	19,746,773	830,000	23.79
Estonia	25,985,553	23,542,769	827,117	28.46
Total	7,823,466,198	7,612,818,705	141,571,608	53.77

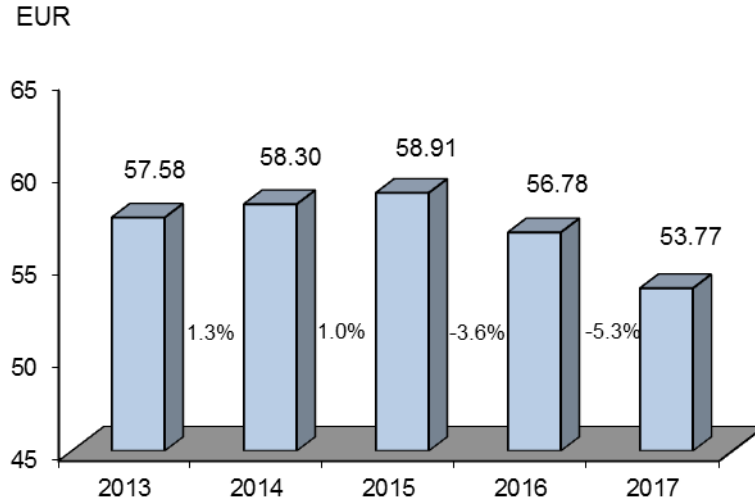
Source: WP CER-109-2017

Table 5 – Cost-bases and national unit rates for 2017

2.2. *Weighted national unit rate*

The weighted average national unit rate for the Contracting States is calculated by dividing the sum of the costs chargeable to users by the service units for the same year. The weighted average national unit rate for 2017 was EUR 53.77, see Table 5.

Graph 1 gives the weighted average national unit rate in euros from 2013 to 2017, based on forecast costs and service units used to establish the national basic unit rates (with the September exchange rates of previous years).



Graph 1 – Weighted average national unit rate

3. CHANGES IN ACTUAL COSTS OF EN ROUTE SERVICES

Table 6 shows the actual costs incurred by States in the provision of en route services in 2014, 2015 and 2016. The States' actual costs were converted into euros using the annual average exchange rates and are set out in Table 6 below. The States' shares of EUROCONTROL costs are included.

Charging zones	2014	2015	2016	Variation 2015/2014	Variation 2016/2015
Belgium-Luxembourg	155,716,192	160,753,284	166,388,324	3.2%	3.5%
Germany	1,015,641,838	998,129,209	961,086,891	-1.7%	-3.7%
France (1)	1,202,444,859	1,239,579,250	1,256,601,408	3.1%	1.4%
United Kingdom	830,928,440	905,229,191	813,673,210	8.9%	-10.1%
Netherlands	177,584,241	175,440,319	187,949,589	-1.2%	7.1%
Ireland	102,687,732	106,784,766	108,670,638	4.0%	1.8%
Switzerland (2)	128,929,851	150,370,167	138,175,449	16.6%	-8.1%
Portugal Lisboa	106,875,894	110,975,595	112,678,540	3.8%	1.5%
Austria	179,083,235	178,768,396	186,679,605	-0.2%	4.4%
Spain-Continental	610,753,911	594,240,394	591,361,095	-2.7%	-0.5%
Spain-Canarias	104,152,773	98,836,636	95,856,862	-5.1%	-3.0%
Portugal Santa Maria	39,884,994	40,360,900	39,260,760	1.2%	-2.7%
Greece	145,365,657	146,050,899	141,132,309	0.5%	-3.4%
Turkey	335,551,195	374,896,476	416,752,247	11.7%	11.2%
Malta	14,890,731	16,845,837	18,130,096	13.1%	7.6%
Italy	658,965,254	644,872,816	637,727,794	-2.1%	-1.1%
Cyprus	48,120,348	51,048,657	49,919,678	6.1%	-2.2%
Hungary	81,376,478	86,459,381	88,831,293	6.2%	2.7%
Norway	113,273,565	108,302,276	100,394,895	-4.4%	-7.3%
Denmark	94,772,021	97,602,571	94,650,828	3.0%	-3.0%
Slovenia	30,206,410	31,147,499	32,468,008	3.1%	4.2%
Romania	155,720,092	151,648,364	162,269,755	-2.6%	7.0%
Czech Republic	103,569,682	105,035,165	114,534,427	1.4%	9.0%
Sweden	193,690,099	306,004,999	222,220,213	58.0%	-27.4%
Slovak Republic	59,543,852	57,581,991	59,229,009	-3.3%	2.9%
Croatia	78,228,263	84,694,017	85,650,981	8.3%	1.1%
Bulgaria	79,961,528	88,930,091	91,522,130	11.2%	2.9%
FYROM	13,633,220	13,701,810	13,763,370	0.5%	0.4%
Moldova	5,859,308	4,520,630	3,381,982	-22.8%	-25.2%
Finland	44,308,946	45,235,400	45,686,269	2.1%	1.0%
Albania	20,869,936	21,967,591	22,275,875	5.3%	1.4%
Bosnia and Herzegovina	34,982,135	33,984,505	36,908,277	-2.9%	8.6%
Serbia/Montenegro/KFOR	80,423,663	81,718,201	77,058,340	1.6%	-5.7%
Lithuania	22,268,867	23,121,075	22,775,398	3.8%	-1.5%
Poland	158,706,315	147,715,500	150,036,493	-6.9%	1.6%
Armenia	4,770,101	4,786,755	4,752,990	0.3%	-0.7%
Latvia	20,956,756	21,182,494	21,047,181	1.1%	-0.6%
Georgia	17,735,973	17,813,827	18,802,442	0.4%	5.5%
Subtotal	7,272,434,355	7,526,336,936	7,390,304,651	3.5%	-1.8%
Estonia			21,999,000		
Total	7,272,434,355	7,526,336,936	7,412,303,651	3.5%	-1.5%

Source: 2016 actual figures WP CER-109-2017

Note: (1) Including Jersey and Geneva

(2) Excluding Geneva (France)

Table 6 – En route services – actual costs

4. TRAFFIC STATISTICS

4.1. Total service units – growth rate

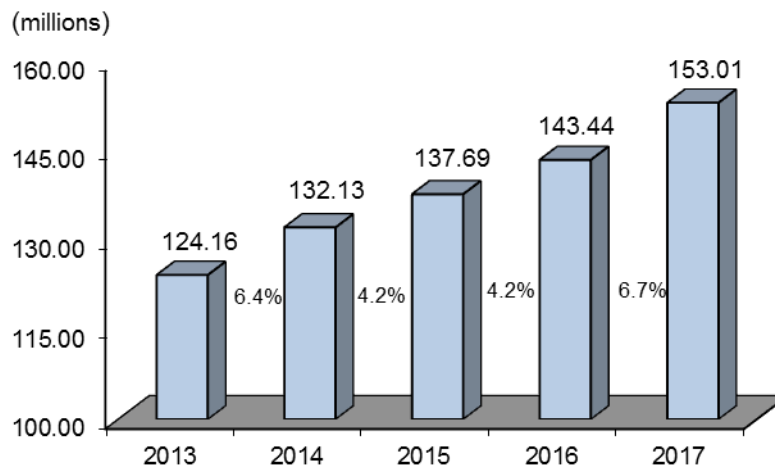
For a given flight and a given charging zone, the route charge is equal to the number of service units multiplied by the unit rate. The number of service units is equal to the weight factor (i.e. the square root of the MTOW divided by 50) multiplied by the distance factor (i.e. the number of kilometres in the great circle distance between the entry and exit points at which the route indicated in the last filed flight plan crosses the charging zone boundary divided by one hundred).

Over the past three years, the growth rate in the total number of service units was as follows:

Year	Service units	Variation
2015	137,688,952	4.2%
2016	143,439,296	4.2%
2017	153,007,694	6.7%

Table 7 – Total service units

The total service units amounted to 153.0 million in 2017. There was an increase of 6.7% between 2016 and 2017.



Graph 2 – Total service units 2013-2017

4.2. Total actual service units – totals per charging zone

Table 8 gives, for each charging zone, the total number of service units (chargeable and exempted) generated from 2013 to 2017, as well as the average annual variation observed during the same period.

Charging zones	2013	2014	2015	2016	2017	Variation 2017/2016	Variation (2) 2013-2017
Belgium-Luxembourg	2,277,014	2,362,038	2,454,178	2,499,996	2,593,652	3.7%	3.3%
Germany (1)	12,569,982	12,880,783	12,976,261	13,561,501	14,374,175	6.0%	3.4%
France	17,899,945	18,496,754	18,867,771	19,882,659	20,862,129	4.9%	3.9%
United Kingdom	9,754,933	9,979,403	10,153,907	10,874,798	11,767,621	8.2%	4.8%
Netherlands	2,701,735	2,767,312	2,892,654	3,099,952	3,223,221	4.0%	4.5%
Ireland	3,812,940	3,922,499	4,182,450	4,467,595	4,465,253	-0.1%	4.0%
Switzerland	1,384,957	1,427,068	1,454,786	1,493,182	1,603,674	7.4%	3.7%
Portugal Lisboa	2,876,753	3,019,611	3,150,186	3,509,556	3,777,024	7.6%	7.0%
Austria	2,456,012	2,645,392	2,739,285	2,749,863	2,973,819	8.1%	4.9%
Spain-Continental	8,447,044	8,767,769	8,997,417	9,761,348	10,440,757	7.0%	5.4%
Spain-Canarias	1,515,812	1,491,781	1,402,349	1,484,755	1,602,003	7.9%	1.4%
Portugal Santa Maria	4,021,257	4,166,099	4,661,620	5,039,640	5,308,501	5.3%	7.2%
Greece	4,215,705	4,617,799	4,898,818	4,678,399	5,158,194	10.3%	5.2%
Turkey	10,636,744	12,808,849	14,181,607	14,374,452	15,888,906	10.5%	10.6%
Malta	735,327	727,375	823,344	905,497	915,945	1.2%	5.6%
Italy	8,117,393	8,313,546	8,171,509	8,301,990	8,631,816	4.0%	1.5%
Cyprus	1,326,579	1,454,224	1,547,646	1,540,071	1,727,958	12.2%	6.8%
Hungary	2,100,927	2,406,153	2,695,133	2,788,496	2,973,195	6.6%	9.1%
Norway	2,050,929	2,220,734	2,313,891	2,495,164	2,526,846	1.3%	5.4%
Denmark	1,523,724	1,532,003	1,583,445	1,621,145	1,665,678	2.7%	2.3%
Slovenia	411,103	459,206	466,264	501,752	524,771	4.6%	6.3%
Romania	3,751,523	4,181,845	4,570,684	4,442,936	4,756,852	7.1%	6.1%
Czech Republic	2,374,021	2,393,408	2,531,815	2,737,003	2,823,895	3.2%	4.4%
Sweden	3,208,684	3,284,841	3,354,938	3,401,901	3,615,171	6.3%	3.0%
Slovak Republic	984,989	1,044,343	1,071,382	1,138,250	1,189,020	4.5%	4.8%
Croatia	1,694,578	1,760,424	1,790,210	1,787,992	1,799,166	0.6%	1.5%
Bulgaria	2,057,979	2,743,606	3,222,750	3,412,754	3,513,254	2.9%	14.3%
FYROM	177,596	246,466	263,988	249,929	300,537	20.2%	14.1%
Moldova	240,411	131,067	73,816	59,855	68,990	15.3%	-26.8%
Finland	770,452	795,764	760,383	763,829	848,430	11.1%	2.4%
Albania	455,595	468,799	484,426	442,280	453,737	2.6%	-0.1%
Bosnia and Herzegovina	654,113	782,870	870,175	866,281	1,020,313	17.8%	11.8%
Armenia	149,164	142,478	125,671	111,239	178,052	60.1%	4.5%
Serbia/Montenegro/KFOR	1,638,512	1,751,706	1,974,864	2,130,658	2,240,900	5.2%	8.1%
Poland	3,983,698	3,930,688	3,880,013	4,174,735	4,290,520	2.8%	1.9%
Lithuania	450,551	487,217	492,283	507,472	540,776	6.6%	4.7%
Latvia	733,633	766,861	801,836	789,087	877,214	11.2%	4.6%
Subtotal	124,162,313	131,378,779	136,883,757	142,648,014	151,521,963	6.2%	5.1%
Georgia		751,536	805,195	791,282	806,695	1.9%	
Estonia					679,036		
Total	124,162,313	132,130,315	137,688,952	143,439,296	153,007,694	6.7%	5.4%

2017 service units: situation at 15/1/18

(1) Includes 70,539 service units for flight segments performed in 2017 as Operational Air Traffic.

(2) Average annual variation during the period 2013-2017

Table 8 – Total number of service units generated

4.3. Service units - exempted flights

Table 9 details the number of service units generated in each charging zone in 2017. For any given charging zone, the number of chargeable service units (column 8) is the difference between the total service units (column 1) and the service units generated in respect of exempted flights (column 7).

Charging zones	Total service units	EXEMPTED FLIGHTS						Chargeable service units
		Military	Heads of State	<2T	Circular	Other	Total exemptions	
		(2)	(3)	(4)	(5)	(6)	(7)	
1	2	3	4	5	6	7	8	
Belgium-Luxembourg	2,593,652	12,795	1,839	1,041	246	165	16,085	2,577,566
Germany (1)	14,374,175	102,565	9,075	13,560	28	759	125,987	14,248,188
France	20,862,129	150,403	7,472	14,573	11,033	5,729	189,210	20,672,919
United Kingdom	11,767,621	146,646	3,310	2,962	4,374	663	157,955	11,609,666
Netherlands	3,223,221	34,827	1,001	1,289	533	108	37,758	3,185,464
Ireland	4,465,253	46,595	1,457	103	367	209	48,731	4,416,522
Switzerland	1,603,674	1,017	956	1,242	5	291	3,512	1,600,162
Portugal Lisboa	3,777,024	32,878	812	167	1,341	341	35,540	3,741,484
Austria	2,973,819	8,702	1,859	2,090	46	268	12,965	2,960,854
Spain-Continental	10,440,757	82,159	3,754	1,829	4,858	1,901	94,501	10,346,257
Spain-Canarias	1,602,003	10,653	602	91	112	539	11,997	1,590,006
Portugal Santa Maria	5,308,501	95,095	1,779	65	143	309	97,391	5,211,110
Greece	5,158,194	95,452	3,476	620	706	587	100,842	5,057,352
Turkey	15,888,906	123,178	9,200	130	670	1,399	134,577	15,754,330
Malta	915,945	35,054	560	53	62	369	36,097	879,848
Italy	8,631,816	136,435	7,539	2,544	2,051	1,615	150,185	8,481,631
Cyprus	1,727,958	22,257	1,094	227	99	5	23,683	1,704,275
Hungary	2,973,195	31,030	1,699	352	431	39	33,553	2,939,642
Norway	2,526,846	15,301	502	133	1,289	3,046	20,271	2,506,574
Denmark	1,665,678	9,165	581	643	1,071	155	11,615	1,654,063
Slovenia	524,771	1,048	219	429	24	38	1,760	523,011
Romania	4,756,852	45,724	2,417	223	594	83	49,041	4,707,811
Czech Republic	2,823,895	42,015	1,369	1,431	2	126	44,944	2,778,951
Sweden	3,615,171	12,615	1,878	1,548	2,115	374	18,530	3,596,642
Slovak Republic	1,189,020	14,087	931	348		7	15,373	1,173,647
Croatia	1,799,166	2,883	844	688	258	166	4,839	1,794,327
Bulgaria	3,513,254	36,179	1,623	109	146	108	38,166	3,475,089
FYROM	300,537	0	137	33	24	3	197	300,340
Moldova	68,990	0	32	14	18	13	76	68,914
Finland	848,430	1,085	455	424	321	470	2,756	845,674
Albania	453,737	2,692	215	52	7	6	2,971	450,765
Bosnia and Herzegovina	1,020,313	557	488	153	149	29	1,375	1,018,937
Armenia	178,052	0	119	0		0	119	177,933
Serbia/Montenegro/KFOR	2,240,900	588	951	204	325	77	2,144	2,238,756
Poland	4,290,520	22,428	3,308	1,760	15	228	27,740	4,262,780
Lithuania	540,776	2,596	319	128		0	3,042	537,734
Latvia	877,214	5,642	406	80		6	6,134	871,080
Georgia	806,695	8,092	913	21		4	9,030	797,665
Estonia (2)	679,036	477	409	119		6	1,011	678,024
Total	153,007,694	1,390,915	75,600	51,477	33,464	20,243	1,571,700	151,435,995

2017 service units: situation at 15/1/18

(1) Includes 70,539 service units for flight segments performed in 2017 as Operational Air Traffic.

(2) Estonia was technically integrated into the EUROCONTROL route charges system on 1 April 2017 (The actual total service units of Estonia for the full year is 864.575)

Table 9 – Service units generated in respect of exempted flights

4.4. Distances

Table 10 sets out the number of kilometres recorded in the airspace of the Contracting States from 2013 to 2017 for the calculation of route charges (great circle distance after deduction of 20 km for departing and arriving flights) as well as the average annual variation observed during the same period.

Charging zones	2013 (in '000 km)	2014 (in '000 km)	2015 (in '000 km)	2016 (in '000 km)	2017 (in '000 km)	Variation 2017/2016	Variation (1) 2013-2017
Belgium-Luxembourg	169,891	174,775	180,829	183,217	189,290	3.3%	2.7%
Germany	973,891	989,707	994,499	1,029,273	1,086,972	5.6%	2.8%
France	1,452,113	1,489,471	1,513,661	1,593,675	1,672,706	5.0%	3.6%
United Kingdom	694,777	705,892	720,095	767,752	820,975	6.9%	4.3%
Netherlands	197,547	202,182	212,513	225,933	231,921	2.7%	4.1%
Ireland	192,782	196,782	208,723	223,814	224,108	0.1%	3.8%
Switzerland	118,518	120,120	121,441	123,991	133,827	7.9%	3.1%
Portugal Lisboa	201,943	215,769	225,654	251,952	272,294	8.1%	7.8%
Austria	193,595	201,737	204,413	203,907	219,197	7.5%	3.2%
Spain-Continental	680,708	707,133	724,852	779,654	834,751	7.1%	5.2%
Spain-Canarias	99,917	101,444	97,621	105,813	114,009	7.7%	3.4%
Portugal Santa Maria	189,233	195,865	217,342	235,986	251,388	6.5%	7.4%
Greece	308,228	331,647	343,936	328,289	364,043	10.9%	4.2%
Turkey	675,741	789,467	856,434	853,219	932,938	9.3%	8.4%
Malta	41,458	41,248	45,847	49,227	50,227	2.0%	4.9%
Italy	657,053	670,894	659,797	670,677	696,828	3.9%	1.5%
Cyprus	95,152	104,342	108,976	109,299	122,738	12.3%	6.6%
Hungary	142,871	158,497	173,415	178,428	188,605	5.7%	7.2%
Norway	164,080	172,070	172,978	180,691	182,405	0.9%	2.7%
Denmark	120,926	119,784	122,958	124,579	127,492	2.3%	1.3%
Slovenia	33,447	36,537	36,889	38,777	40,845	5.3%	5.1%
Romania	228,048	251,460	265,847	257,408	273,993	6.4%	4.7%
Czech Republic	163,230	166,654	176,757	188,853	192,847	2.1%	4.3%
Sweden	253,334	256,709	257,907	260,730	275,671	5.7%	2.1%
Slovak Republic	68,441	71,859	72,076	75,920	78,810	3.8%	3.6%
Croatia	127,742	130,939	132,532	130,984	133,638	2.0%	1.1%
Bulgaria	141,114	174,214	200,558	205,298	208,174	1.4%	10.2%
FYROM	14,239	19,227	20,307	19,239	22,945	19.3%	12.7%
Moldova	14,160	9,446	6,284	5,296	6,013	13.5%	-19.3%
Finland	57,687	57,957	55,233	54,448	59,212	8.7%	0.7%
Albania	32,999	33,271	34,211	31,136	32,294	3.7%	-0.5%
Bosnia and Herzegovina	50,036	58,806	64,478	63,354	74,204	17.1%	10.4%
Armenia	9,097	8,596	7,226	6,553	9,979	52.3%	2.3%
Serbia/Montenegro/KFOR	125,351	132,867	148,956	158,311	166,310	5.1%	7.3%
Poland	285,480	289,308	287,834	306,448	316,308	3.2%	2.6%
Lithuania	33,967	35,640	35,424	36,203	38,663	6.8%	3.3%
Latvia	51,920	53,691	55,016	54,075	59,393	9.8%	3.4%
Subtotal	9,060,715	9,476,009	9,763,518	10,112,411	10,706,013	5.9%	4.3%
Georgia		39,512	41,049	40,643	41,561	2.3%	
Estonia					41,327		
Total	9,060,715	9,515,522	9,804,567	10,153,054	10,788,901	6.3%	4.5%

2017 distances: situation at 15/1/18

(1) Average annual variation during the period 2013-2017

Table 10 – Total distance per charging zone

5. OPERATIONAL STATISTICS

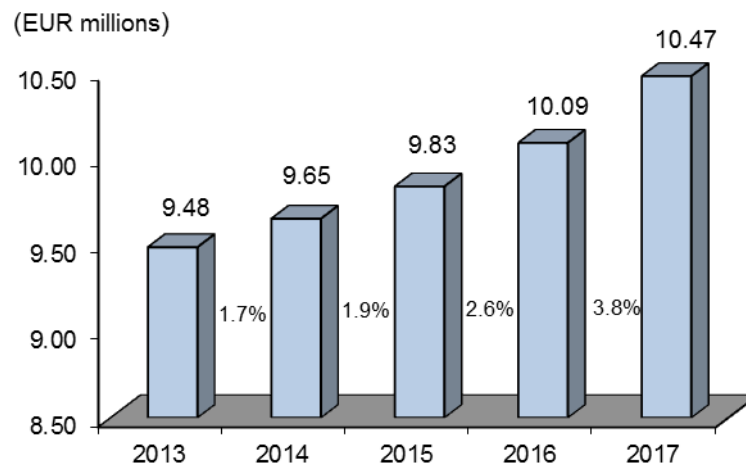
5.1. Flights processed – growth rate

The number of flight messages processed corresponds to the number of flights (whether chargeable or exempted) recorded for charging purposes in the airspace of the Contracting States.

Over the past three years, the annual variation in the number of flights was as follows:

Year	Flights processed	Variation
2015	9,834,961	1.9%
2016	10,086,833	2.6%
2017	10,471,610	3.8%

Table 11 – Number of flights processed



Graph 3 – Flight messages processed 2013-2017

5.2. Total number of flight segments

The total number of flight segments per charging zone, as recorded in the airspace of the Contracting States from 2013 to 2017, is shown in Table 12 below.

Charging zones	2013 (1)	2014 (1)	2015 (1)	2016 (1)	2017 (1)	Variation 2017/2016	Variation (2) 2013-2017
Belgium-Luxembourg	1,121,442	1,153,758	1,185,259	1,210,996	1,257,779	3.9%	2.9%
Germany	3,079,435	3,120,260	3,176,783	3,250,531	3,363,274	3.5%	2.2%
France	2,879,381	2,931,631	2,972,867	3,105,659	3,218,599	3.6%	2.8%
United Kingdom	2,198,839	2,241,077	2,302,757	2,433,124	2,522,226	3.7%	3.5%
Netherlands	1,119,527	1,140,612	1,190,787	1,256,290	1,307,768	4.1%	4.0%
Ireland	527,243	542,636	565,507	608,514	619,054	1.7%	4.1%
Switzerland	1,065,163	1,080,738	1,096,015	1,106,339	1,167,928	5.6%	2.3%
Portugal Lisboa	448,656	479,444	504,502	558,382	611,779	9.6%	8.1%
Austria	1,139,809	1,176,107	1,191,081	1,196,511	1,256,220	5.0%	2.5%
Spain-Continental	1,534,712	1,589,254	1,650,041	1,776,693	1,890,023	6.4%	5.3%
Spain-Canarias	265,403	281,206	280,655	310,401	332,507	7.1%	5.8%
Portugal Santa Maria	126,031	127,902	137,991	152,884	163,791	7.1%	6.8%
Greece	614,766	668,849	704,482	692,624	742,165	7.2%	4.8%
Turkey	1,155,082	1,284,150	1,370,796	1,344,913	1,429,139	6.3%	5.5%
Malta	107,950	100,115	100,064	107,359	115,057	7.2%	1.6%
Italy	1,682,989	1,700,232	1,731,027	1,769,555	1,821,083	2.9%	2.0%
Cyprus	273,819	300,352	314,504	317,715	354,957	11.7%	6.7%
Hungary	606,449	676,389	755,221	790,277	838,010	6.0%	8.4%
Norway	551,559	558,974	552,436	556,408	553,186	-0.6%	0.1%
Denmark	625,183	625,682	635,099	646,765	654,566	1.2%	1.2%
Slovenia	327,120	346,570	345,126	350,809	384,020	9.5%	4.1%
Romania	508,756	594,139	630,903	614,236	667,410	8.7%	7.0%
Czech Republic	689,497	712,278	759,800	810,139	829,405	2.4%	4.7%
Sweden	771,982	783,173	790,692	804,263	835,773	3.9%	2.0%
Slovak Republic	404,822	433,965	465,436	494,963	512,319	3.5%	6.1%
Croatia	497,537	525,193	539,433	545,540	588,059	7.8%	4.3%
Bulgaria	549,028	682,258	766,175	757,285	783,295	3.4%	9.3%
FYROM	118,774	150,219	158,878	154,164	180,129	16.8%	11.0%
Moldova	73,838	55,636	45,139	40,928	47,904	17.0%	-10.3%
Finland	248,736	250,657	244,391	242,413	259,586	7.1%	1.1%
Albania	200,260	197,458	201,198	185,794	191,578	3.1%	-1.1%
Bosnia and Herzegovina	247,140	284,670	305,674	318,407	368,606	15.8%	10.5%
Armenia	52,347	50,231	42,086	38,921	54,495	40.0%	1.0%
Serbia/Montenegro/KFOR	515,768	550,079	600,077	614,004	646,051	5.2%	5.8%
Poland	684,687	698,558	699,518	751,642	786,883	4.7%	3.5%
Lithuania	211,438	224,580	224,848	228,322	240,233	5.2%	3.2%
Latvia	234,324	241,551	243,458	245,348	266,852	8.8%	3.3%
Subtotal	27,459,492	28,560,583	29,480,706	30,389,118	31,861,709	4.8%	3.8%
Georgia		114,098	121,919	125,769	142,058	13.0%	
Estonia					169,656		
Total flight segments	27,459,492	28,674,681	29,602,625	30,514,887	32,173,423	5.4%	4.0%

2017 flight segments situation at 15/1/18

(1) Excluding VFR flight segments, representing 0.15% of the total flight segments processed.

The impact of VFR flights on total distances, service units and charges is negligible. 48,674 VFR flights processed in 2017, of which 16,127 were performed in Italian airspace and 10,249 in Spanish airspace (Continental - 8,402 and Canarias - 1,847).

(2) Average annual variation during the period 2013-2017

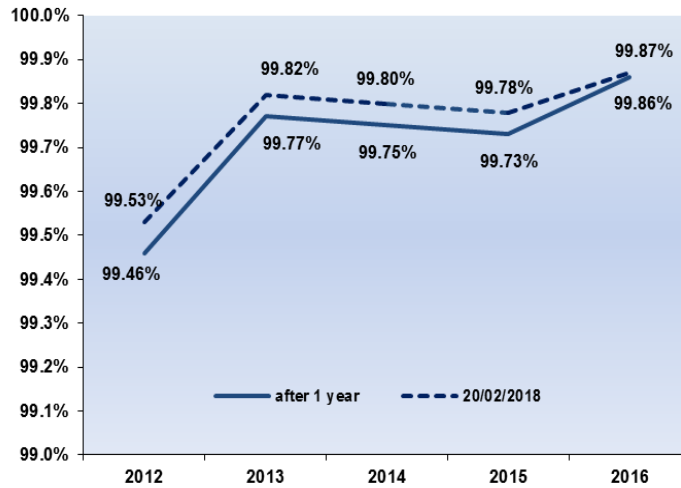
Table 12 – Flight segments

5.3. Recovery rates

5.3.1 Medium- and long-term recovery rates

The medium-term recovery rate, i.e. the recovery rate after one year, is published annually by the CRCO. It is the recovery rate, at 31 December of year N, for amounts billed in respect of year N-1. The recovery rate for 2016 was 99.86%.

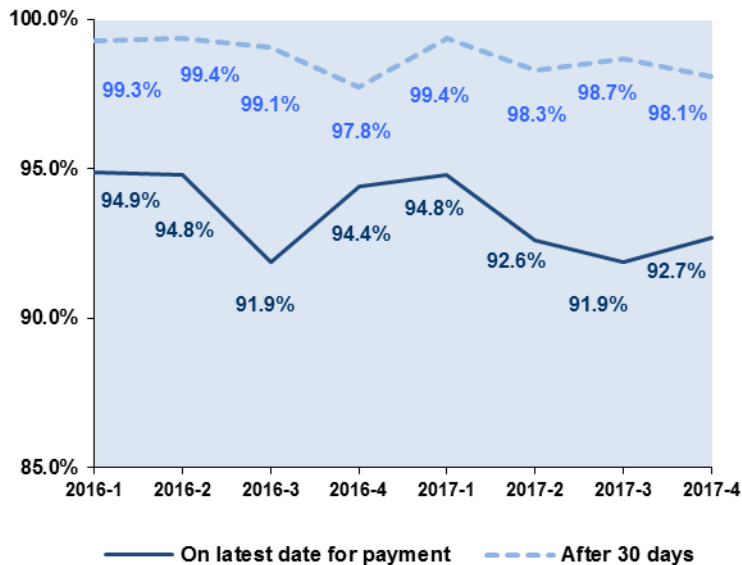
The long-term recovery rate reflects the trend performance of the CRCO. The graph below also shows the annual recovery rates for the period 2012-2016 measured on 20 February 2018. The average long-term recovery rate for the period 2012-2016 was 99.76%.



Graph 4 – Medium- and long-term recovery rates

5.3.2 Quarterly recovery rates at latest date for payment and after 30 days

The annual average recovery rate on the latest date for payment amounted to 93.0% in 2017, compared with 94.0% in 2016. The annual average recovery rate 30 days after the latest date for payment was 98.6% in 2017 compared to 98.9% in 2016.

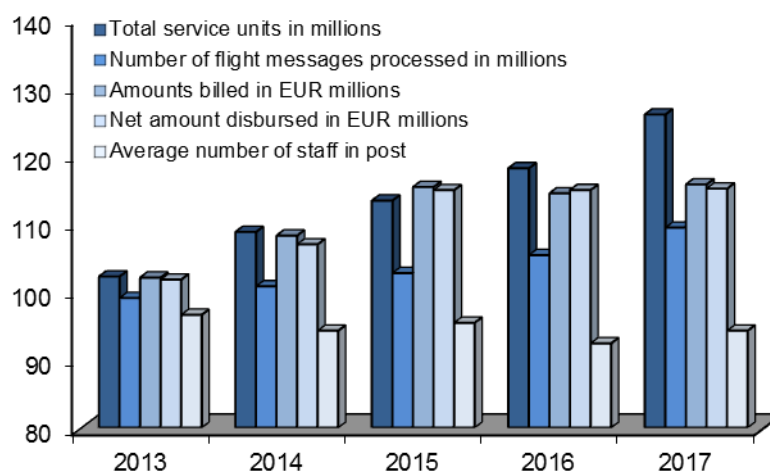


Graph 5 – Recovery rates on latest date for payment and after 30 days

5.4. The CRCO's productivity

5.4.1. Evolution of key figures

The productivity of the CRCO is clearly demonstrated in the graph below. It shows the evolution of the total service units, the number of flight messages processed, the amounts billed and net amount disbursed compared with the average numbers of staff.



Graph 6 – Evolution of CRCO key figures in 2013-2017 (Index: 2012=100)

5.4.2 CRCO's actual costs compared with service units/amounts billed

The table and graphs below show the ratios between the CRCO's actual net costs (route charge collection costs under the Multilateral System net of receipts from bilateral agreements and excluding carry overs) and service units/amounts billed.

Year	CRCO costs (EUR millions)	Service units (millions)	Cost per service unit (2) / (3)	Amounts billed (EUR millions)	Ratio % (2) / (5)
1	2	3	4	5	6
2013	16.8	124.16	0.14	7,069	0.24%
2014	15.7	132.13	0.12	7,495	0.21%
2015	14.4	137.69	0.10	7,989	0.18%
2016	15.2	143.44	0.11	7,924	0.19%
2017	16.8	153.01	0.11	8,015	0.21%

2017 service units and amounts billed: situation at 15/1/18

Table 13 – Ratios between the CRCO's actual net costs and service units/amounts billed

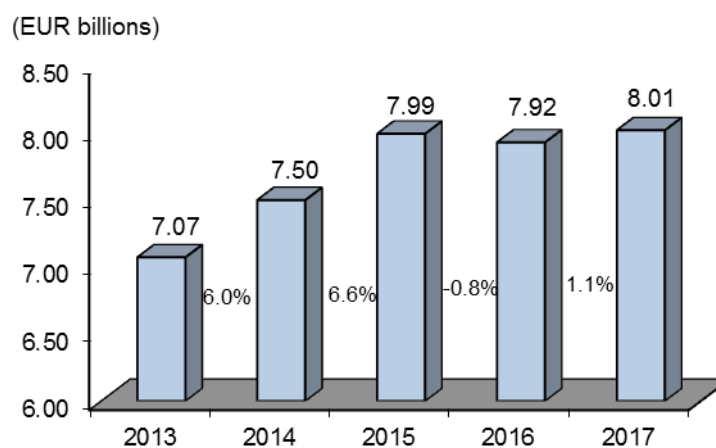
6. FINANCIAL STATISTICS

6.1. Amounts billed for flights performed in 2017

The amounts billed to airspace users for flights performed between January and December 2017 totalled about EUR 8.0 billion (see Tables 14 and 15). This represents an increase of 1.1 % over 2016. Amounts billed exclude value added tax (VAT), amounting to EUR 17.9 million, billed on behalf of twenty-two VAT-taxable air navigation service providers in the Contracting States (see Table 16).

Year	Amounts billed (EUR)	Variation rate
2015	7,988,748,510	6.6%
2016	7,924,384,821	-0.8%
2017	8,014,714,394	1.1%

Table 14 – Amounts billed for flights performed in 2015-2017



Graph 7 – Amounts billed for flights carried out in 2013-2017

6.2. Amounts billed and disbursed to the States

Table 15 shows the total amounts billed in euros for flights performed in 2017 and the amounts disbursed in euros to the Contracting States in 2017.

Charging zones	Amount billed	Net amount disbursed
Belgium-Luxembourg	174,063,126	171,439,658
Germany	989,251,866	1,002,377,706
France	1,386,532,797	1,373,175,388
United Kingdom	858,960,827	866,788,898
Netherlands	211,291,569	210,605,397
Ireland	130,773,186	130,067,283
Switzerland	165,289,495	164,017,948
Portugal Lisboa	150,370,151	148,997,769
Austria	215,490,852	211,501,304
Spain-Continental	742,447,304	731,948,717
Spain-Canarias	92,904,152	91,058,016
Portugal Santa Maria	52,423,753	52,633,034
Greece	151,821,664	151,606,579
Turkey	363,435,369	358,982,241
Malta	16,593,951	17,239,113
Italy	679,124,265	660,691,205
Cyprus	58,610,078	56,592,335
Hungary	104,009,938	102,062,894
Norway	116,501,153	114,849,195
Denmark	100,262,640	99,849,749
Slovenia	33,823,212	33,443,566
Romania	154,415,456	153,693,421
Czech Republic	119,689,350	117,980,154
Sweden	217,499,416	215,312,889
Slovak Republic	61,745,555	60,887,578
Croatia	83,647,923	82,643,343
Bulgaria	93,714,856	89,797,018
FYROM	15,685,442	15,302,889
Moldova	4,230,741	3,956,785
Finland	47,611,400	46,760,424
Albania	22,944,803	22,744,421
Bosnia and Herzegovina	44,146,777	42,829,503
Serbia/Montenegro/KFOR	78,056,949	77,201,392
Poland	185,609,764	176,841,118
Lithuania	23,923,761	23,558,096
Armenia	6,905,931	6,482,976
Latvia	23,980,916	23,416,103
Georgia	17,579,983	17,780,104
Estonia	19,344,022	15,319,105
Total	8,014,714,394	7,942,435,312
National charges (all States)	8,004,114,422	
Administrative charges (all States)	10,599,972	

2017 amounts billed: situation at 15/1/18

2017 amounts disbursed: balance sheet and administrative (operating results) accounts financial year 2017

Table 15 – Amounts billed and disbursed to the States in 2017

6.3. VAT billed and disbursed to the States

Table 16 shows the total amounts of VAT billed in euros for flights performed in 2017 and the amounts disbursed in euros in 2017 to the 22 VAT-taxable air navigation service providers of the Contracting States which apply VAT to route charges.

Charging zones	VAT billed	VAT disbursed
Germany	1,504,780	1,474,459
United Kingdom	3,470,914	3,482,639
Ireland	189,913	128,205
Switzerland	38,316	38,601
Austria	237,844	236,698
Continantal Spain	1,214,560	1,066,223
Spain - Canaries	346,707	306,948
Norway	9,511,585	9,285,135
Denmark	108,543	114,578
Slovenia	42,258	41,336
Romania	212,159	197,332
Czech Republic	116,605	121,138
Slovak Republic	86,372	90,091
Croatia	218,513	153,062
Bulgaria	110,591	91,747
Moldova	15	6
Finland	100,840	91,902
Poland	280,809	282,473
Lithuania	25,492	26,903
Latvia	33,699	33,759
Georgia	4,992	2,863
Estonia	49,784	38,074
Total	17,905,292	17,304,171

2017 amounts billed: situation at 15/1/18

2017 amounts disbursed: balance sheet and administrative (operating results) accounts financial year 2017

Table 16 – VAT billed and disbursed to the Contracting States in 2017

7. ORIGIN OF TRAFFIC AND RECEIPTS

Table 17 shows the percentage of chargeable service units and route charges recorded for all the Contracting States in 2017, by user state of registration. Contracting States' national users accounted for 73% of the total number of chargeable service units and for 77% of the total route charges billed.

User state of registration	Chargeable service units	Route charges billed
Belgium	1.5%	1.7%
Luxembourg	0.6%	0.6%
Germany	9.5%	10.6%
France	4.9%	5.3%
United Kingdom	12.8%	14.4%
Netherlands	3.5%	3.7%
Ireland	8.7%	10.7%
Switzerland	2.0%	2.3%
Portugal Lisboa	1.7%	1.7%
Austria	1.5%	1.7%
Spain	4.8%	5.1%
Greece	0.8%	0.7%
Turkey	7.8%	5.2%
Malta	0.3%	0.4%
Italy	1.8%	2.2%
Cyprus	0.1%	0.1%
Hungary	1.8%	1.8%
Norway	1.2%	1.3%
Denmark	0.7%	0.8%
Slovenia	0.1%	0.1%
Romania	0.6%	0.6%
Czech Republic	0.6%	0.6%
Sweden	2.2%	2.5%
Slovak Republic	0.1%	0.0%
Croatia	0.1%	0.1%
Bulgaria	0.2%	0.2%
FYROM	0.0%	0.0%
Moldova	0.1%	0.1%
Finland	0.8%	0.8%
Albania	0.0%	0.0%
Bosnia and Herzegovina	0.0%	0.0%
Armenia	0.0%	0.0%
Serbia	0.2%	0.2%
Montenegro	0.0%	0.0%
Poland	1.0%	0.9%
Lithuania	0.1%	0.1%
Latvia	0.3%	0.3%
Georgia	0.0%	0.0%
Estonia	0.0%	0.0%
Total Participating States	72.6%	76.9%
USA	3.8%	3.7%
Others	23.6%	19.4%
Total all nationalities	100.0%	100.0%
Total European Union	61.3%	67.8%

Table 17 – Total percentage of chargeable service units and route charges billed in 2017 by user state of registration

8. RULES AND PROCEDURES OF THE ROUTE CHARGES SYSTEM

Principles for establishing the cost-base and the calculation of the unit rates

The “Principles for establishing the cost-base and the calculation of the unit rates” were amended by Decision No 122 of the enlarged Commission dated 1 October 2013, and a new version entered into force in November 2013. Annex V, listing the organisations of airspace users’ representatives, was updated in January 2018.

The EUROCONTROL Principles offer two options for calculating en route costs and unit rates: the determined cost and the full cost recovery. The EUROCONTROL Principles are consistent with the Commission Implementing Regulation (EU) No. 391/2013 laying down a common charging scheme for air navigation services (replacing Commission Regulation (EC) No. 1794/2006).

Conditions of Application of the Route Charges System and Conditions of Payment

The Conditions of Application of the Route Charges System and Conditions of Payment describe in detail the formula used for the calculation of route charges, the categories of flights exempt from payment of route charges, and the procedures for payment of route charges. The latest version entered into force in May 2011.