

JULIET WINGS

CORSIA EMISSIONS MONITORING PLAN SAMPLE

In order to prepare for the monitoring, reporting and verification (MRV) of CO₂ emissions, each operator will need to develop an emissions monitoring plan. The emissions monitoring plan shall include information on the operator, its fleet and operations. The emissions monitoring plan will also detail the methods that will be used by the operator to monitor fuel use and calculate emissions, and all associated data management.

The emissions monitoring plan is important for the verification process. It helps the verifier to understand the methods chosen, assess if they are consistent with the requirements under CORSIA and if they have been applied properly.

The emissions monitoring plan will have to be approved by the administrating authority, who should be satisfied that the processes described by the operator are appropriate and sufficient to comply with the prescribed MRV requirements. Before approving it, the administrating authority will review the emissions monitoring plan to ensure it is complete and consistent with the requirements of Annex 16 vol. IV. It will notably assess if the procedures in place are sufficient and and if the operator has a suitable data management plan in place.

The approval by the administrating authority will give the operator the assurance that the processes detailed in its emissions monitoring plan are satisfactory.

In order to assist operators with the preparation of their emissions monitoring plan, IATA has put together a few sample emissions monitoring plans for fictional airlines. These samples are solely aimed at illustrating the level of detail and type of information which we would recommend including in the emissions monitoring plan. **However:**

- **The template and the level of information to be included will ultimately depend on the expectations of individual ICAO Member States.** We would therefore urge all operators to check with their authorities which template they shall use and clarify any doubts they may have on the expectations of their administrating authority.
- **The procedures which are suitable and appropriate for one operator may not be appropriate for another operator.** Therefore, we would strongly caution against copying the descriptions in any of the sample emissions monitoring plans. Individual operators must make sure that the procedures they describe in their emissions monitoring plans are tailored for their organization and that they will be able to implement them as described.

An overview and comments for the three sample emissions monitoring plans are provided in a separate document.

For any questions, please do not hesitate to contact the IATA CORSIA team at corsia@iata.org.

CORSIA

EMISSIONS MONITORING PLAN (EMP)

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Template Information

Template provided by:	
Version (publication date):	

Note: For the purpose of this template, international flight is defined as in Annex 16, Volume IV, Part II, Chapter 1, 1.1.2, and Chapter 2, 2.1.

1 VERSION CONTROL OF EMISSIONS MONITORING PLAN

a) Version No.

Please enter version number of the current version.

Version 1

b) Version control

If necessary, please fill in the table.

Version No.	No. of previous version	Date of update	Emissions Monitoring Plan is valid from	Chapters where modifications have been made. Brief explanation of amendments.
1	n/a	2018-09-01	2019-01-01	n/a

2 AEROPLANE OPERATOR IDENTIFICATION AND DESCRIPTION OF ACTIVITIES

(Annex 16, Volume IV, Appendix 4, 2.1)

a) Name of the aeroplane operator

Please enter the name of the aeroplane operator. This name should be the legal entity engaged in the aeroplane operation, or the legal entity seeking to be the single entity for the CORSIA administration under a parent-subsidiary arrangement.

Juliet Wings

b) Address of the aeroplane operator

Please enter the address of the aeroplane operator.

Address line:	Via Cappello 23
City:	Verona
State/Province/Region:	
Postcode/ZIP:	37121
Country:	Italy

c) Legal representative

Please enter a contact address of a representative who is legally responsible for the aeroplane operator for official correspondence.

Title:	Ms
First name:	Stella
Surname:	Ferrari
Email address:	ceo@juliet-wings.it
Telephone number:	+39 045 123 4567
Address line 1:	Via Cappello, 23
Address line 2:	
City:	Verona
State/Province/Region:	
Postcode/ZIP:	37121
Country:	Italy

d) Aircraft identification of the aeroplane operator for international flights (Item 7 of the flight plan)

Select the options planned to be used for reporting flight attribution to the aeroplane operator.

ICAO Designator

Does Item 7 (aircraft identification) of the flight plan begin with an **ICAO Designator** according to Doc 8585 — Designators for Aircraft Operating Agencies, Aeronautical Authorities and Services? If yes, please select "ICAO Designator" from the drop down list and complete d2).

Registration marks

Does Item 7 (aircraft identification) of the flight plan correspond to the **nationality or common mark, and registration mark**, as explicitly stated in an **AOC** (or equivalent)? If yes, please select "Registration marks" from the drop down list and complete d3).

ICAO Designator and registration marks

ICAO Designator: according to Doc 8585

d1) Responsibility under the CORSIA

Aeroplane operator that has been assigned the ICAO Designator

d2) ICAO Designator

Provide the ICAO Designator (or Designators) used for Air Traffic Control purposes, as listed in Doc 8585 — Designators for Aircraft Operating Agencies, Aeronautical Authorities and Services, if the aeroplane operator has an ICAO Designator(s).

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d3) List of registration marks

Please list all aeroplanes including the nationality or common mark, and registration mark, of the aeroplane. If your fleet exceeds 30 registration marks, please attach a separate document to the EMP.

No.	Registration mark	No.	Registration mark	No.	Registration mark
1		11		21	
2		12		22	
3		13		23	
4		14		24	
5		15		25	
6		16		26	
7		17		27	
8		18		28	
9		19		29	
10		20		30	

d4) Additional information on flight attribution

Please provide additional information to support the approach followed for flight attribution.

No additional information.

e) Do you have an air operator certificate (AOC)?

The air operator certificate (AOC) is a certificate authorizing an operator to carry out specified commercial air transport operations i.e., a document issued to an aeroplane operator by a Civil Aviation Authority which affirms that the aeroplane operator in question has the professional ability and organization to secure the safe operation of the aeroplane for the aviation activities specified in the certificate.

yes

e1) Identification code of the AOC

Please enter the unique identification number of the air operator certificate of the issuing Civil Aviation Authority. If you hold several AOCs, list the additional certificates in the field "Information about the certificate".

8211

e2) Date of issue

Please enter the date on which the air operator certificate was issued. Use the entry format yyyy-mm-dd.

1999-10-05

e3) Date of expiry

Please enter the date on which the air operator certificate expires (if applicable). Use the entry format yyyy-mm-dd.

2025-11-30

e4) Competent authority for the AOC

Please enter the address of the authority that issued the AOC.

Name of the authority:	Ente Nazionale per l'Aviazione Civile
Address line:	Viale Castro Pretorio
City:	Roma
State/Province/Region:	
Postcode/ZIP:	185
Country:	Italy

e5) Information about the certificate

Please give information about the scope of aviation activities the AOC permits to carry out. Are there any temporal, regional or other restrictions? Have any obligations been imposed?

The AOC authorizes Juliet Wings to perform commercial air operations. There are no temporal, regional or other restrictions.

e6) Please attach the current versions of the AOCs covered in this Emissions Monitoring Plan; please confirm below

yes

f) Description of the ownership structure of your company

Details of ownership structure relative to any other aeroplane operators with international flights, including identification of whether the aeroplane operator is a parent company to other aeroplane operators with international flights, a subsidiary of another aeroplane operator (or operators) with international flights and/or has a parent and or subsidiaries that are aeroplane operators with international flights. Please describe the ownership structure of the operating company.

Juliet Wings' shares are split between public and private shareholders.
 Juliet Wings' wholly owns Juliet Sightseeing, a subsidiary with an Italian AOC, but no ICAO designator. Juliet Sightseeing does not operate any flights subject to CORSIA MRV.

f1) Parent-subsidiary relationship recognized as a single entity for the CORSIA administration?

Please specify whether the aeroplane operator is in a parent-subsidiary relationship which should be recognized as a single entity for the CORSIA administration?

no

f2) Name of the subsidiary company(ies)

If your company heads a group, please specify the names of the subsidiaries which also carry out international aviation activities and select how aircraft identification of the subsidiary for international flights is managed. Where appropriate, please attach additional explanatory files to the Emissions Monitoring Plan.

Name of the subsidiary	Aircraft identification of the subsidiary for international flights (Item 7 of the flight plan)

f3) Confirmation that parent and subsidiary(ies) are administered by the same State

If the aeroplane operator in a parent-subsidiary relationship seeks to be considered a single aeroplane operator for purposes of the CORSIA, confirm that the parent and subsidiary(ies) are subject to CORSIA administration by the same State.

f4) Confirmation that parent and subsidiary(ies) are wholly-owned by the parent

If the aeroplane operator in a parent-subsidiary relationship seeks to be considered a single aeroplane operator for purposes of the CORSIA, confirm that the subsidiary(ies) are wholly-owned by the parent.

f5) Additional information on the subsidiary(ies)

Step 1: On the basis of the provided information in f3), please specify the aircraft identification of the subsidiary(ies) for international flights (Item 7 of the flight plan) according to the same level of detail as requested in d) (e.g., state ICAO Designator or list registration marks). Please indicate how flights are assigned to the parent/subsidiary operation.

Step 2: Please specify whether there are any other items covered in this Emissions Monitoring Plan where the subsidiary(ies) deviate from the monitoring of the parent.

In case of insufficient space below, please attach additional documents to your Emissions Monitoring Plan submission.

g) Description of the aeroplane operator's activities

Please describe the aeroplane operator's activities. Provide details of main State pairs, typical leasing arrangements, scheduled/non-scheduled, pax/cargo/executive and geographic scope of operations.

Juliet Wings is a regional airline based in Verona, Italy. It only operates intra-European scheduled passenger operations.

h) Contact person

Please enter the contact information of the person within the aeroplane operator who is responsible for the Emissions Monitoring Plan.

Title:	Mr
First name:	Antonio
Surname:	Colombo
Email address:	acolombo@juliet-wings.it
Telephone number:	+39 045 123 4567
Address line 1:	Via Cappello, 23
Address line 2:	
City:	Verona
State/Province/Region:	
Postcode/ZIP:	37121
Country:	Italy

h1) Alternate contact person

Please enter the contact information of an additional person within the aeroplane operator who is responsible for the Emissions Monitoring Plan.

Title:	Ms
First name:	Angela
Surname:	De Luca
Email address:	adeluca@juliet-wings.it
Telephone number:	+39 045 123 4567
Address line 1:	Via Cappello, 23
Address line 2:	
City:	Verona
State/Province/Region:	
Postcode/ZIP:	37121
Country:	Italy

3 FLEET AND OPERATIONS DATA

(Annex 16, Volume IV, Appendix 4, 2.2)

a) Fleet declaration

List all aeroplane types, including owned aeroplanes as well as leased aeroplanes, with an MTOM greater than 5 700 kg (12 566 lbs) operated on international flights, as defined in Annex 16, Volume IV, Part II, Chapter 1, 1.1.2, and Chapter 2, 2.1, at the time of submission of the Emissions Monitoring Plan as specified in Doc 8643 — Aircraft Type Designators.

Additional information about Doc 8643 — Aircraft Type Designators can be found at:

<http://www.icao.int/publications/DOC8643/Pages/Search.aspx>

No.	ICAO type designator	Fuel type	Number of aeroplanes
1	BCS1	Jet-A1	4
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

No.	ICAO type designator	Fuel type	Number of aeroplanes
21			
22			
23			
24			
25			
26			
27			
28			
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40			

b) Additional aeroplane types

Will new aeroplane types always be monitored using the same methods as aeroplane types identified in section 4 of this plan?

yes

b1) Details about the procedure for defining the monitoring methodologies for additional aeroplane types

Define clearly the methods which are used for monitoring new aeroplane types that are not already in use.

Responsible department

Description of procedure

Location of records

c) Changes in aeroplane fleet and fuel type

Please provide information on the procedure for how changes in aeroplane fleet and fuel used will be tracked and integrated in emissions monitoring.

Responsible department	Flight operations
Description of procedure	Each time a new aircraft is added to our fleet, the flight operations department sends an internal communication to all employees. The Environment department will keep a fleet list, which will be cross-checked with the Flight Operations department at the end of each year, before the emissions report is produced.
Location of records	Flight operations

d) Completeness of all aeroplanes and all flights

Please provide information on the means that will be used to track/document each aeroplane operated and the specific flights of the aeroplane to ensure completeness of monitoring.

Responsible department	Environment department
Description of procedure	The Flight Operations Department keeps a database of operational records for each flight performed. Data required for CORSIA MRV will be extracted and sent to the Environment department. Our financial services have a process during which fuel and other operational invoices are checked against flight data. If any flights are missing from the Flight Operations database, it will be identified during that process. The Environment department will be responsible to ensure the data is received from the Flight operations department and that Financial services confirm the completeness of the data.
Location of records	Flight operations

e) List of State pairs operated by the aeroplane operator

Please list **all** State pairs where international flights are currently operated. If applicable, please list State pairs from the State of origin to the State of destination (*). If your State pairs exceed 50, please attach a separate document to the Emissions Monitoring Plan.

(*) For example, flights from State A to State B will require inserting a State pair A-B in the list; flights from State B to State A will require inserting a State pair B-A in the list.

No.	State of origin	State of destination
1	Italy	France
2	Italy	Germany
3	Italy	Portugal
4	Italy	Spain
5	Italy	Switzerland
6	France	Italy
7	Germany	Italy
8	Portugal	Italy
9	Spain	Italy
10	Switzerland	Italy
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50		

f) Determination of all international flights

Please provide information on procedures for determining which aeroplane flights meet the definition of international flights for the purpose of Annex 16, Volume IV, and therefore are subject to the emissions monitoring requirements subject to applicability of Annex 16, Volume IV, Part II, Chapter 2, 2.1.

Responsible department	Environment department
Description of procedure	Juliet Wings will use the CERT to determine which flights meet the definition of international flights for CORSIA.
Location of records	Environment department

g) Determination of international flights with offsetting requirements

Please provide information on the procedures for determining which international flights are subject to CO₂ offsetting requirements under the CORSIA as described in Annex 16, Volume IV, Part II, Chapter 3, 3.1.

Responsible department	Environment department
Description of procedure	Juliet Wings will use the CERT to determine which flights meet the definition of international flights for CORSIA. The Environment department will be responsible to ensure the latest version of the CERT is used.
Location of records	Environment department

h) Determination of flights with no monitoring requirements

If the aeroplane operator conducts any domestic flights and/or humanitarian, medical or firefighting international operations that would not be subject to the emissions monitoring requirements, information on the procedures for how those operations will be separated from those subject to the emissions monitoring requirements.

Responsible department	Environment department
Description of procedure	Juliet Wings does not operate any humanitarian, medical or firefighting flights. Should any be performed, the information will be included in the database maintained by our Flight operations department.
Location of records	Flight operations department

4 METHODS AND MEANS FOR CALCULATING EMISSIONS

(Annex 16, Volume IV, Appendix 4, 2.3)

a) Fuel Use Monitoring Method and / or the ICAO CORSIA CO₂ Estimation and Reporting Tool (CERT)

Please specify whether the aeroplane operator plans to use one or more Fuel Use Monitoring Method(s) (as described in Annex 16, Volume IV, Appendix 2) and / or the ICAO CORSIA CO₂ Estimation and Reporting Tool (CERT) (as described in Annex 16, Volume IV, Appendix 3) for the 2019-2020 and 2021-2035 periods. When deciding on the monitoring method, consideration should be given to whether the aeroplane operator is eligible for the same method in the 2019-2020 period as in the 2021-2035 period.

For the reporting years 2019 and 2020 (in accordance with Annex 16, Volume IV, Part II, Chapter 2, 2.2.1.2)

- a Fuel Use Monitoring Method is mandatory for aeroplane operators with annual emissions equal to or above 500 000 tonnes of CO₂ from international flights, as defined in Annex 16, Volume IV, Part II, Chapter 1, 1.1.2 and Chapter 2, 2.1.
- an aeroplane operator with annual CO₂ emissions from international flights, as defined in Annex 16, Volume IV, Part II, Chapter 1, 1.1.2 and Chapter 2, 2.1 of less than 500 000 tonnes, shall use either a Fuel Use Monitoring Method or the ICAO CORSIA CO₂ Estimation and Reporting Tool (CERT).

For the reporting years 2021 until 2035 (in accordance with Annex 16, Volume IV, Part II, Chapter 2, 2.2.1.3)

- a Fuel Use Monitoring Method is mandatory for aeroplane operators with annual emissions equal to or above 50 000 tonnes of CO₂ from international flights subject to offsetting requirements, as defined in Annex 16, Volume IV, Part II, Chapter 1, 1.1.2, and Chapter 3, 3.1. For international flights not subject to offsetting requirements, the aeroplane operator shall use either a Fuel Use Monitoring Method or the ICAO CORSIA CO₂ Estimation and Reporting Tool (CERT).
- an aeroplane operator with annual emissions from international flights subject to offsetting requirements, as defined in Annex 16, Volume IV, Part II, Chapter 1, 1.1.2, and Chapter 3, 3.1, of less than 50 000 tonnes, shall use either a Fuel Use Monitoring Method or the ICAO CORSIA CO₂ Estimation and Reporting Tool (CERT).

Fuel Use Monitoring Method and ICAO CORSIA CO₂ Estimation and Reporting Tool (CERT)

a1) Option for simplified monitoring on routes not subject to offsetting requirements

Aeroplane operators which use a Fuel Use Monitoring Method (as described in Annex 16, Volume IV, Appendix 2) for the 2021-2035 period have an option for simplified monitoring with the ICAO CORSIA CO₂ Estimation and Reporting Tool (CERT) (as described in Annex 16, Volume IV, Appendix 3) on State pairs not subject to offsetting requirements. Please specify whether the aeroplane operator intends to use this option.

no

b) Fuel Use Monitoring Methods

Please provide information on the use of different monitoring methods per sub fleet (by ICAO aircraft type designator).

Monitoring method	Applicable for the following sub-fleets of aeroplanes (by ICAO aircraft type designator)	2019-2020 period	2021-2035 period
Method A			
Method B			
Block-off / Block-on			
Fuel Uplift	BCS1	no	yes
Fuel Allocation with Block Hour			

c) Simplified monitoring method

Please provide information on use of the ICAO CORSIA CO₂ Estimation and Reporting Tool (CERT).

2019-2020 period	2021-2035 period
yes	no

c1) Estimated annual CO₂ emissions

Please demonstrate the eligibility to use the ICAO CORSIA CO₂ Estimation and Reporting Tool (CERT) by providing an estimate of fuel use in order to calculate an estimate of the total CO₂ emissions for international flights, as defined in Annex 16, Volume IV, Part II, Chapter 2, 2.1. If the ICAO CORSIA CERT was used to estimate the CO₂ emissions, enter the information in the field "Estimate from the ICAO CORSIA CERT". For 2019, the estimate can be based on data within the 2017-2018 period or another appropriate period.

Fuel type	Annual fuel use (in tonnes)	Fuel conversion factor	Annual CO ₂ emissions (in tonnes)
Jet-A		3.16	
Jet-A1		3.16	
Jet-B		3.10	
AvGas		3.10	
Estimate from the ICAO CORSIA CERT			44486

c2) Supporting information on estimation

Provide supporting information on how the estimation of emissions in c1) has been determined, including on how fuel use has been estimated. In case the ICAO CORSIA CO₂ Estimation and Reporting Tool (CERT) has been used, a copy of the tool has to be attached and the input method (i.e., Great Circle Distance or Block Time) has to be stated.

Copy of CERT assessment is provided in attachment.
It is estimated that Juliet Wings' emissions on flights subject to offsetting requirements will exceed 50,000 tCO₂ from 2022.

c3) Input method for reporting

Please specify for the ICAO CORSIA CO₂ Estimation and Reporting Tool (CERT) whether Great Circle Distance or Block Time is used to estimate emissions for the reporting periods.

Great Circle Distance

d) Separation of parent-subsidary related emissions in 2019-2020

If the aeroplane operator is in a parent-subsidary relationship and intends to be considered a single aeroplane operator for purposes of the CORSIA, identify the procedures that will be used for maintaining separate 2019-2020 fuel and emissions monitoring of the various corporate entities for the purpose of establishing individual 2019-2020 reference CO₂ emissions for the parent and subsidiary (or subsidiaries).

Not applicable

4.1 Fuel Use Monitoring Method: METHOD A

a) Time of measurement and corresponding documentation for the chosen method

Please specify the exact points in time for the three measurements necessary to calculate the fuel consumption per flight and outline the measurement equipment and procedures for recording, receiving, transmitting and storing of fuel data. Please provide a reference to the corresponding documentation.

Not applicable

b) Fuel density for international flights

Please provide information on the procedures for determining and recording fuel density values (standard or actual) as used for operational and safety reasons and provide reference to the relevant internal documentation. These procedures shall be applied when calculating the fuel consumption for the CORSIA.

Not applicable

4.2 Fuel Use Monitoring Method: METHOD B

a) Time of measurement and corresponding documentation for the chosen method

Please specify the exact points in time for the three measurements necessary to calculate the fuel consumption per flight and outline the measurement equipment and procedures for recording, receiving, transmitting and storing of fuel data. Please provide a reference to the corresponding documentation.

Not applicable

b) Fuel density for international flights

Please provide information on the procedures for determining and recording fuel density values (standard or actual) as used for operational and safety reasons and provide reference to the relevant internal documentation. These procedures shall be applied when calculating the fuel consumption for the CORSIA.

Not applicable

4.3 Fuel Use Monitoring Method: BLOCK-OFF / BLOCK-ON

a) Time of measurement and corresponding documentation for the chosen method

Please specify the exact points in time for the two measurements necessary to calculate the fuel consumption per flight and outline the measurement equipment and procedures for recording, receiving, transmitting and storing of fuel data. Please provide a reference to the corresponding documentation.

Not applicable

4.4 Fuel Use Monitoring Method: FUEL UPLIFT

a1) Measurement of the block hours (per flight) and corresponding documentation for the chosen method

Please specify the exact points in time for the measurement of block hours per flight (necessary to calculate the fuel consumption per flight for international flights with zero uplift and for the following flight) and outline the measurement equipment and procedures for recording, receiving, transmitting and storing of fuel data. Please provide a reference to the corresponding documentation.

Block time is measured as the time between the aircraft first moves from its parking place for the purpose of taking off, until it comes to rest on the designated parking position, and all engines are stopped.
Block time is logged manually by pilots in the technical log (primary source) but also in flight crew records (secondary source).

a2) Assignment and adjustment for flights with zero fuel uplift

Please explain the data handling and calculations necessary to meet the adjustment requirement for flights with zero fuel uplift.

Data will be extracted by aircraft tailnumber. In case where no fuel data is recorded for a flight, the Environment team will check that no data gap has occurred. After confirmation that a flight with zero fuel uplift has occurred, the fuel uplift data for the previous flight will be allocated to the flights under consideration in proportion to their block time.

b) Fuel uplift

Please specify which fuel uplift record will be used.

Fuel uplift data will be based on fuel slips.

c) Fuel density for international flights

Please provide information on the procedures for determining and recording fuel density values (standard or actual) as used for operational and safety reasons and provide reference to the relevant internal documentation. These procedures shall be applied when calculating the fuel use for the CORSIA.

The mass of the fuel load is determined using a standard fuel density of 0.80 kg/l for all flights.

4.5 Fuel Use Monitoring Method: FUEL ALLOCATION WITH BLOCK HOUR

a) Option for calculating the specific fuel burn

Please choose from the options listed below and enter the ICAO type designators and the model for each option. Should one option for all aeroplane types be used, simply enter "all".

	Option	ICAO aircraft type designator / model
<input type="checkbox"/>	1 st Option for aeroplane operators which can clearly distinguish between fuel uplifts for international and domestic flights on a flight by flight basis. In case this option is selected, please also complete section 4.4 (Fuel uplift, a1 and a2), as this monitoring method is used to calculate the total fuel burn on international flights for a specific ICAO type designator or aircraft model.	
<input type="checkbox"/>	2 nd Option for aeroplane operators which cannot clearly distinguish between international and national fuel uplifts on a flight by flight basis.	

b) Measurement of the block hours (per flight) and corresponding documentation for the chosen method

Please specify the exact points in time for the measurement of block hours per flight and outline the measurement equipment and procedures for recording, receiving, transmitting and storing of fuel data. Please provide a reference to the corresponding documentation.

Not applicable

c) Fuel uplift

Please specify which fuel uplift record will be used.

Not applicable

d) Fuel density for international flights

Please provide information on the procedures for determining and recording fuel density values (standard or actual) as used for operational and safety reasons and provide reference to the relevant internal documentation. These procedures shall be applied when calculating the fuel use for the CORSIA.

Not applicable

4.6 ICAO CORSIA CO₂ ESTIMATION AND REPORTING TOOL (CERT)

(Annex 16, Volume IV, Appendix 3)

a) Description of relevant input data

Please specify whether Great Circle Distance and/or Block Time is used as input into the ICAO CORSIA CERT. If applicable, please specify the procedures for determining Block Time and potentially aggregating them to be used in the ICAO CORSIA CERT. This includes specifying the exact points in time for the two time measurements per flight necessary to calculate the Block Time.

Block time will be used as input into the CERT.

Block time is measured as the time between the aircraft first moves from its parking place for the purpose of taking off, until it comes to rest on the designated parking position, and all engines are stopped.

Block time is logged manually by pilots in the technical log (primary source) but also in flight crew records (secondary source).

5. DATA MANAGEMENT, DATA FLOW, CONTROL SYSTEM, RISK ANALYSIS AND DATA GAPS

(Annex 16, Volume IV, Appendix 4, 2.4)

a) Description of data management

Please provide a description of each step in the data flow and data processing, including controls to assure data quality, beginning with the source data up to the Emissions Report. Please reference the responsible departments. Please attach a data flow chart to the Emissions Monitoring Plan summarizing the systems used to record, store and control the quality of data associated with the monitoring and reporting of emissions.

- Applicable from 2021: fuel uplift data will be collected from fuel slips. After each fuel uplift, the pilot in command is required to compare the quantity of fuel on board by comparing it with the quantity on board before refueling plus the quantity indicated on the fuel slip. This will allow to identify any potential discrepancies.
- Flight records, including technical logs and fuel slips, are collected by our Flight Operations Department. The data required for the Emissions report will be extracted on a monthly basis and sent to the Environment department.
- The data will be input as a csv in the CERT that will (1) automatically sort international flights, (2) fill data gaps with CERT CO2 estimations and (3) generate an emissions report.

b) Threshold for data gaps

If employing a Fuel Use Monitoring Method, please provide a description of the systems and procedures for identifying data gaps and for assessing whether the 5 per cent threshold for significant data gaps has been reached (in accordance with Annex 16, Volume IV, Part II, Chapter 2, 2.5.1).

Missing data will be identified manually by the Environment Department. The Environment department will also check the quality of fuel use data by comparing fuel burn against average data for the aerodrome-pair in question. Potentially erroneous data will be checked using technical logs.

b1) Description of available secondary sources

Please specify data sources that can be alternatively used for reporting purposes.

For block time, crew records may be used as a secondary source.
Technical logs will be available as secondary sources for fuel uplift data.

b2) Handling of data gaps and erroneous data values

Aeroplane operators using a Fuel Use Monitoring Method shall use the ICAO CORSIA CO₂ Estimation and Reporting Tool (CERT) to fill data gaps, in accordance with Annex 16, Volume IV, Part II, Chapter 2, 2.5.1, where the secondary data sources listed above are not available. For aeroplane operators not using a Fuel Use Monitoring Method, please provide a description of the method that will be used to fill data gaps in the event a secondary data reference source listed above is not available.

2019-2020: block time, origin, destination and aircraft for all our flights are systematically recorded and no data gap is therefore expected to occur when using the CERT to monitor our emissions. In the unlikely situation where block time would be missing, we will fill the gap using the CERT with the great circle distance input method (which does not require block time).

From 2021: the CERT will be used to fill data gaps.

b3) Data gaps despite secondary sources

Does the existing data management system allow for data gaps when secondary data sources exist?

no

b4) Explanations of data gaps for which existing secondary sources cannot be used

Please describe the conditions (e.g., cost, time to resolve, data availability, data quality) under which this occurs.

c) Documentation and record keeping plan

Please specify where process directives are stored. Please indicate the IT system used, if applicable. List of applied data management and IT standards, where relevant.

All our flight records and CORSIA data are kept electronically for 10 years. The data is stored on a cloud.

d) Explanation of risks

Data management systems and controls are critical for ensuring data completeness, security, quality and minimizing the risk of a material error or misstatement in the emissions report. Please provide a list of the risks associated with the data management system and the corresponding internal or external control activity(ies) for addressing each.

The main risk associated with data collection are related to the manual entry of technical logs and fuel slips. However, the data validation process described above will identify potential mistakes during the manual entry process. Potential errors will be corrected by retrieving the original records.
The risk of data loss are very low. Our servers and back up cloud are not colocated which allows for disaster management.

e) Revisions of Emissions Monitoring Plan

Please provide information on procedures for identifying: i) material changes to the Emissions Monitoring Plan requiring revision and resubmission to the State and ii) non-material changes to the Emissions Monitoring Plan for disclosure in the Emissions Report.

The Environment Department will be responsible to amend the EMP and submit the amendments for approval in cases of material changes. Non-material changes will be notified in an appendix to our annual emissions report.

