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SUBPART A – GENERAL

§ 157.3 General

(a) This part prescribes the ICAO's Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) for implementation in the Kingdom of Saudi Arabia. Airplane operators are required to measure and report CO₂ emissions based on fuel use from international flights to the President, beginning from a 2019-2020 baseline period. The timeline and compliance requirements for this part can be found in Appendix A. Emissions in excess of internationally agreed targets must be offset via cancellation of emissions credits or other emission reduction schemes.

§ 157.5 Applicability

(a) This part prescribes the technical requirements governing airplane operators that produce annual CO₂ emissions greater than 10,000 tons from the use of an airplane(s) conducting international flights. It applies to airplanes with a maximum certificated take-off mass greater than 5,700 kg.

(b) The following terms are used in this part:

- (1) An Airplane Operator means an operator certified under GACAR part 119 or otherwise legally permitted to operate an airplane in the Kingdom of Saudi Arabia.
- (2) An Aerodrome pair is a group of two aerodromes composed of a departure aerodrome and an arrival aerodrome.
- (3) An Airplane owner is a person, organization or enterprise identified in the certificate of registration of an airplane.
- (4) A Baseline period is the initial period of CORSIA, which establishes the reference emissions that airplane operators use as a basis for calculating offset requirements in future compliance periods.
- (5) A Cancellation is the cancellation of an emissions unit is the permanent removal and single use of a CORSIA Eligible Emissions Unit within a CORSIA Eligible Emissions Unit Program designed registry such that the same emissions unit may not be used more than once.
- (6) A Compliance Period is the compliance period for GACAR 157, which is every three years beginning in 2021.
- (7) A CORSIA eligible fuel is a CORSIA sustainable aviation fuel or a CORSIA lower carbon aviation fuel, which an operator may use to reduce their offsetting requirements.
- (8) A CORSIA lower carbon aviation fuel is a fossil-based aviation fuel that meets the CORSIA Sustainability Criteria under this GACAR.
- (9) A CORSIA sustainable aviation fuel is a renewable or waste-derived aviation fuel that meets the CORSIA Sustainability Criteria under this GACAR.
- (10) A Domestic flight is a flight that is defined as the operation of an airplane from take-off at an aerodrome of a State or its territories, and landing at an aerodrome of the same State or its territories.
- (11) An Emissions Unit is one metric ton of carbon dioxide equivalent.
- (12) A Fuel Uplift is the measurement of fuel provided by the fuel supplier, as documented in the fuel delivery notes

or invoices for each flight (in liter).

- (13) An International flight is a flight that is defined as the operation of an airplane from take-off at an aerodrome of a State or its territories, and landing at an aerodrome of another State or its territories.
 - (14) A New entrant is any airplane operator whose aviation activity falls within the scope of this GACAR on or after its entry into force and whose activity is not in whole or in part a continuation of an aviation activity previously performed by another airplane operator.
 - (15) A Reporting period is a period that commences on 1 January and finishes on 31 December in a given year for which an airplane operator or State reports required information. The flight departure time (UTC) determines which reporting period a flight belongs to.
 - (16) A State pair is a group of two States composed of a departure State or its territories and an arrival State or its territories.
 - (17) A Systematic error is a consistent, repeatable error caused by faulty equipment, usually an incorrectly calibrated instrument or improperly used measurement device.
 - (18) A Verification report is an independent, systematic and sufficiently documented evaluation process of an emissions report and, when required, a cancellation of eligible emissions units report.
 - (19) A Verification body is a legal entity that performs the verification of an Emissions Report and, when required, an Emissions Unit Cancellation Report, as an accredited independent third party and authorized by a Member State according to ISO 14065:2013.
 - (20) Verification report. A document, drafted by the verification body, containing the verification statement and required supporting information.
- (c) For the purpose of this GACAR:
- (1) CERT is the abbreviation for CO₂ Estimation and Reporting Tool
 - (2) CO₂ is the abbreviation for Carbon Dioxide
 - (3) CO_{2e} is the abbreviation for Carbon Dioxide equivalent
 - (4) CORSIA is the abbreviation for Carbon Offsetting and Reduction Scheme for International Aviation
 - (5) EMP is the abbreviation for Emissions Monitoring Plan
 - (6) GHG is the abbreviation for Greenhouse gases
 - (7) MRV is the abbreviation for Monitoring, Reporting and Verification
 - (8) OE_y is the abbreviation for Individual aircraft operator's emissions covered by §157.21 (a) subject to offsetting in year y
 - (9) OGF is the abbreviation for Individual aircraft operator's growth factor
 - (10) OR_y is the abbreviation for Individual aircraft operator's emissions offsetting requirements
 - (11) S_y is the abbreviation for Sectoral emissions, including all international aviation emissions, in year y
 - (12) SGF is the abbreviation for Sector's growth factor
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§ 157.7 Units of CORSIA

Non-SI units: The non-SI units listed in Table 1 are used either in lieu of, or in addition to, SI units as primary units of measurement under this GACAR.

Table 1 Non-SI units for use with SI

<i>Specific quantity</i>	<i>Unit</i>	<i>Symbol</i>	<i>Definition (in terms of SI units)</i>
Mass	Ton	t	1 t = 10 ³ kg
Time	Hour	h	1 h = 60 min = 3 600 s
Volume	Liter	L	1 L = 1 dm ³ = 10 ⁻³ m ³

SUBPART B – ADMINISTRATION

§ 157.9 Attribution of international flights to an airplane operator

- (a) The airplane operator must identify international flights that are attributed to it according to the approach defined in 157.9(b) and 157.9(c). Two or more consecutive flights operated under the same flight number are considered as separate flights for the purposes of this GACAR.
- (b) When considering whether a flight is international or domestic, an airplane operator must use ICAO Doc 7910 – Location Indicators, which contains a list of aerodromes and the State they are attributed to. The attribution of a specific international flight to an airplane operator must be determined as follows:
- (1) **ICAO Designator:** When Item 7 (aircraft identification) of the flight plan, which is described in ICAO Doc 4444, contains the ICAO Designator, as listed in ICAO Doc 8585, that flight must be attributed to that airplane operator; if not, then
 - (2) **Registration marks:** When Item 7 of the flight plan contains the nationality or common mark and registration mark of an airplane that is explicitly listed in an AOC (or equivalent) issued by the President, that flight must be attributed to the airplane operator that holds the AOC (or equivalent); if not, then
 - (3) **Other:** When the airplane operator of a flight has not been identified via 157.9(b) (1) or (2), that flight must be attributed to the airplane owner who must then be considered the airplane operator.
- (c) If requested by the President, airplane owners identified via 157.9(b) (3) must provide all information necessary to identify the actual airplane operator of a flight.
- (d) The airplane operator may, by contract, delegate the administrative requirements of this GACAR to a third party, as long as the delegation is not to the same entity as the verification body. Liability for compliance may not be delegated.
- (e) GACA will ensure the correct attribution of an international flight departing from an aerodrome in KSA to an airplane operator using the approach in 157.9(b) and perform the required order of magnitude checks to ensure the completeness of reported data as described in 157.27(a)3.

§ 157.11 Attribution of an airplane operator to the Kingdom of Saudi Arabia

- (a) The airplane operator with international flights must identify the State to which it is attributed according to the approach in 157.11(b). All operators certified under GACAR Part 119 operating airplane maximum takeoff weight more than 5700 kg must fulfil the requirements stipulated in this Part of GACAR.
- (b) The attribution of an airplane operator to the Kingdom of Saudi Arabia is determined as follows:
- (1) **ICAO Designator:** Where the airplane operator has an ICAO Designator under KSA, the airplane operator must fulfill this GACAR's requirements; if not, then
 - (2) **Airplane operator certificate:** Where the airplane operator does not possess an ICAO Designator under KSA, but has a valid airplane operator certificate (or equivalent) under GACAR 119, the airplane operator must fulfill this GACAR's requirements; if not, then
 - (3) **Place of registration:** Where the airplane operator does not possess an ICAO Designator or airplane operator certificate under GACAR 119, but is registered in KSA, the airplane operator must fulfill the requirements under GACAR 157.

- (c) Where the airplane operator is a natural person whose State of residence and registration is the KSA, the airplane operator must fulfill the requirements under GACAR 157.
- (d) The airplane operator with a wholly owned subsidiary airplane operator that is legally registered in KSA may be treated as a single consolidated airplane operator liable for compliance with the requirements of this GACAR, subject to the approval of the President. Evidence must be provided in the airplane operator's Emissions Monitoring Plan to demonstrate that the subsidiary airplane operator is wholly owned.
- (e) GACA will ensure the correct attribution of an airplane operator to it according to the approach in 157.11(b).
- (f) GACA will submit to ICAO a list of airplane operators which are attributed to it.

§ 157.13 Technical and operation standard for CORSIA

- (a) The airplane operator must comply by submitting the following forms in a format and manner prescribed by the President:
 - (1) Airplane Operator Information;
 - (2) Emissions Monitoring Plan; and
 - (3) Emissions Report.

§ 157.15 Recordkeeping

- (a) The airplane operator must keep records relevant for demonstrating compliance with the requirements of Subparts C, D, and E of this GACAR for a period of 10 years.
- (b) The airplane operator must keep records relevant to its CO₂ emissions per aerodrome pair during the 2019-2020 baseline period or the first two years in case of a new entrant, to cross-check its offsetting requirements calculated by the President during the 2030-2035 compliance periods.
- (c) GACA will keep records relevant to the airplane operator's CO₂ emissions per State pair during the period of 2019-2020 in order to calculate the airplane operator's offsetting requirements during the 2030-2035 compliance periods.

§ 157.17 Equivalent procedures

- (a) Airplane operators using equivalent procedures must demonstrate that those procedures meet the requirements stipulated in this GACAR. The use of equivalent procedures in lieu of the procedures specified in this GACAR 157 must be approved by the President.

§ 157.19 Essential Supporting Documents

The documents in Appendix B provide reference data and detailed implementation guidance as well as describe procedures in additional detail. They provide material support to this GACAR and are essential to the implementation of CORSIA.

SUBPART C — MONITORING, REPORTING AND VERIFICATION (MRV) OF AIRPLANE OPERATOR ANNUAL CO₂ EMISSIONS

§ 157.21 MRV Applicability

- (a) Subpart C of this GACAR is applicable to an airplane operator conducting international flights on or after 1 January 2019, with the exception of humanitarian, medical and firefighting flights.
- (b) Subpart C of this GACAR is not applicable to international flights preceding or following a humanitarian, medical or firefighting flight provided such flights were conducted with the same airplane and were required to accomplish the related humanitarian, medical or firefighting activities or to reposition thereafter the airplane for its next activity. The airplane operator must provide supporting evidence of such activities to the verification body or, upon request, to the President.
- (c) Subpart C of this GACAR is applicable to a new entrant airplane operator from the year after it meets the requirements in 157.3.
- (d) Airplane operators must maintain an Operations Manual that contains documented procedures to carry out all of the monitoring, reporting, and verification requirements described in GACAR 157.21.

§ 157.23 Monitoring CO₂ emissions

(a) Emissions Monitoring Plan (EMP)

- (1) The airplane operator must submit an Emissions Monitoring Plan, which is required to be approved by the President.
- (2) A new entrant airplane operator must submit an Emissions Monitoring Plan to the President within three months of falling within the scope of applicability as defined in 157.3.
- (3) The airplane operator must resubmit the Emissions Monitoring Plan to the President for approval if a change is made to the information contained within the Emissions Monitoring Plan.
- (4) If the airplane operator's Emissions Monitoring Plan is determined to be incomplete and/or inconsistent with the Emissions Monitoring Plan requirements, GACA will inform the airplane operator in writing to resolve outstanding issues. This may involve returning the Emissions Monitoring Plan to the airplane operator along with an explanation as to why the plan was found deficient, or a request for further information.

(b) Eligibility of monitoring methods

- (1) The airplane operator must monitor and record its fuel use in accordance with an eligible monitoring method, which must be approved by the President. Any revision made to the approved

monitoring method during any three-year compliance period requires a prior approval from the President.

(c) Calculation of CO₂ emissions from airplane fuel use

- (1) The airplane operator must determine the CO₂ emissions using an eligible Fuel Use Monitoring Method. The airplane operator must apply a fuel density value to calculate fuel mass where the amount of fuel uplift is determined in units of volume. The airplane operator must record the fuel density that is used for operational and safety reasons. The procedure for informing the use of actual or standard density must be detailed in the Emissions Monitoring Plan along with a reference to the relevant airplane operator documentation.
- (2) The airplane operator using a Fuel Use Monitoring Method, must determine the CO₂ emissions from international flights, using the following equation:

$$CO_2 = \sum M_f * FCF_f w$$

Where:

CO₂ = CO₂ emissions (in tons)

M_f = Mass of fuel f used (in tons); and

FCF_f = Fuel conversion factor of given fuel f

Fuel type (f)	Fuel conversion factor (FCF)
Jet-A fuel	3.16 in kg CO ₂ /kg fuel
Jet-A1 fuel	
AvGas	3.10 in kg CO ₂ /kg fuel
Jet-B fuel.	

(d) Monitoring CORSIA eligible fuels claims

- (1) The airplane operator that intends to claim emissions reductions from the use of CORSIA eligible fuels must use a fuel that meets the CORSIA Sustainability Criteria as defined within the document “CORSIA Sustainability Criteria for CORSIA Eligible Fuels”.
- (2) The airplane operator that intends to claim emissions reductions from the use of CORSIA eligible fuel must only use fuel from fuel producers that are certified by an approved Sustainability Certification Scheme included in the document “CORSIA Approved Sustainability Certification Schemes”. Such certification schemes meet the requirements included in the document “CORSIA Eligibility Framework and Requirements for Sustainability Certification Schemes”. The operator must maintain relevant records and the CORSIA approved sustainability certificate for inspection.

- (3) If the airplane operator cannot demonstrate the compliance of the CORSIA eligible fuel with the CORSIA Sustainability Criteria, then it must not be accounted for as CORSIA eligible fuel.
- (4) The emissions reductions from the use of a CORSIA eligible fuel are calculated as indicated in Subpart D §157.35 in the context of the calculation of the CO₂ offsetting requirements in Subpart D. These calculations use the approved life cycle emissions value (LS_f) for the CORSIA eligible fuel.

§ 157.25 Reporting CO₂ emissions

(a) Airplane operator CO₂ emissions reporting

- (1) The airplane operator must submit to the President a copy of the verified Emissions Report and associated Verification Report, in the format prescribed by the President, for approval by the President.
- (2) The President requires airplane operators to report by State pair for its international flights and CO₂ emissions.
- (3) The Emissions Report must contain all the information as prescribed by the President.
- (4) The airplane operator must use the standardized Emissions Report format provided by the President.
- (5) When the airplane operator reports its consolidated CO₂ emissions from international flights, including subsidiary airplane operators, disaggregated data relating to each subsidiary airplane operator must be appended to the main Emissions Report.
- (6) In specific circumstances, where the airplane operator operates a very limited number of State pairs that are subject to offsetting requirements, and/or a very limited number of State pairs that are not subject to offsetting requirements, it may request in writing to the President that such data not be published at the airplane operator level, explaining the reasons why disclosure would harm its commercial interests. Based on this request, the President will determine whether this data is confidential. In the application of 157.25(a)(6) and/or 157.25(a)(7), the annual CO₂ emissions of an airplane operator on a given State pair are considered as commercially sensitive if they are determined using a Fuel Use Monitoring Method.
- (7) In specific circumstances where aggregated State pair data may be attributed to an identified airplane operator as a result of a very limited number of airplane operators conducting flights on a State pair, that airplane operator may request in writing to President that such data not be published at State pair level, explaining the reasons why disclosure would harm their commercial interests.

(b) GACA CO₂ emissions reporting

- (1) GACA will calculate and inform each of the airplane operators of their average total annual CO₂
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emissions during the 2019 and 2020 period.

- (2) GACA will report the computed total annual CO₂ emissions to ICAO.
- (3) GACA will inform ICAO of any reported data deemed confidential in accordance with 157.25(a)6 and 7.
- (4) All airplane operator data which is deemed confidential will be aggregated without attribution to the specific airplane operator, and included within the document “CORSIA Central Registry (CCR): Information and Data for Transparency”.

(c) Reporting CORSIA eligible fuels

- (1) The airplane operator may subtract CORSIA eligible fuels traded or sold to a third party from its total reported quantity of CORSIA eligible fuels.
- (2) The airplane operator must provide a declaration of all other greenhouse gas (GHG) trading schemes it participates in where the emissions reductions from the use of CORSIA eligible fuels may be claimed, and a declaration that it has not made claims for the same batches of CORSIA eligible fuel under these other schemes.
- (3) To claim emissions reductions from the use of CORSIA eligible fuels in the Emissions Report, the airplane operator must provide the information as prescribed by the President within a given compliance period for all CORSIA eligible fuel received by a blender by the end of that compliance period. The information provided is through to the blend point, and includes information received from both the neat (unblended) fuel producer and the fuel blender.
- (4) The airplane operator must make CORSIA eligible fuel claims on an annual basis to ensure all documentation is dealt with in a timely manner. However, the airplane operator has the option to decide when to make a CORSIA eligible fuel claim within a given compliance period for all CORSIA eligible fuel received by a blender within that compliance period.
- (5) If the airplane operator purchases fuel from a supplier downstream from the fuel blender this fuel supplier must provide all of the requisite documentation for the emissions reductions from the use of CORSIA eligible fuels to be claimed by the airplane operator in accordance with Subpart D §157.35.

§ 157.27 Verifying CO₂ emissions

(a) Annual verification of an airplane operator’s Emissions Report

- (1) The airplane operator must contract with a verification body accredited by a Member State according to ISO 14065:2013 for the verification of its annual Emissions Report from the list of verification bodies included within the document “CORSIA Central Registry (CCR): Information and Data for Transparency”.

- (2) Following the verification of the Emissions Report by the verification body, the airplane operator and the verification body must both independently submit, upon authorization by the airplane operator, a copy of the Emissions Report and associated Verification Report to the President.
- (3) GACA will perform an order of magnitude check of the Emissions Report.
- (4) To facilitate order of magnitude checks and ensure the completeness of reported data, and where necessary to support the implementation of the requirements in this GACAR, the President may share, upon agreement with another State, specific data and information contained in the airplane operator's Emissions Report for airplane operators performing flights to and from the requesting State. Such data and information could include the following:
 1. airplane operator's name,
 2. reporting year,
 3. number of international flights, and
 4. airplane and emissions data.
- (5) GACA will inform concerned airplane operators on the requests for data sharing. In the absence of an agreement between the two States, this information will not be disclosed to third parties.
- (6) The President may share, upon a justified request from another State, data on airplane operators that are attributed to it, where the request relates to the correct attribution of flights to airplane operators. This includes leased airplanes where there is a risk of incorrect attribution of flights due to the complexity of leasing and Parent/Subsidiary arrangements between airplane operators.
- (7) GACA will provide the name of the verification body used to verify each Emissions Report upon a request for information disclosure.
- (8) GACA will inform concerned airplane operators of any request for information disclosure.

(b) Verification of records of CORSIA eligible fuels

- (1) The records of fuel purchases, transaction reports, fuel blending records and sustainability credentials must constitute the documentary proof for the purpose of verification and approval of emissions reductions from the use of CORSIA eligible fuels.
- (2) The airplane operator must ensure that it, or its designated representative, has audit rights of the production records for the CORSIA eligible fuels that it purchases. When an audit provision is triggered, and an audit of the fuel producer is undertaken, the airplane operator must share the results of the audit with the fuel producer so that the producer may then make it available to other airplane operators seeking assurance on the fuel producer's internal processes.

§ 157.29 Data gaps

(a) Airplane operators must maintain all relevant records complete in all respect to calculate accurate fuel usage and to prepare emission report, otherwise, the data gap results in incomplete or inaccurate emission report causing unsatisfactory emission report. The airplane operator must describe procedures for data collection in the Operation Manual.

- (1) The airplane operator using a Fuel Use Monitoring Method, must fill data gaps using the ICAO CORSIA CO₂ Estimation and Reporting Tool (CERT) provided that the data gaps during a compliance period do not exceed the following thresholds:
 - (i) Baseline 2019-2020 period: 5 per cent of international flights
 - (ii) 2021-2035 period: 5 per cent of international flights subject to offsetting requirements per compliance period.
- (2) The airplane operator must fill all data gaps and correct systematic errors and misstatements prior to the submission of the Emissions Report. The operator must develop procedures to obtain accurate reading of fuel quantity indicators onboard and fuel suppliers are to be checked or calibrated as per the procedures set in the Operation manual. This procedure ensures correction of gauge-related systematic errors.
- (3) If the airplane operator identifies it has data gaps and system weaknesses that exceed the threshold, then it must inform the President in writing indicating the type of errors detected and remedial actions to prevent such data gap.
- (4) The airplane operator must correct issues identified with the data and information management system within 2 months to mitigate ongoing data gaps and system weaknesses, and report the change to the President.
- (5) When the threshold is exceeded, the airplane operator must state the percentage of international flights that had data gaps and provide an explanation to the President in their annual Emissions Report.

(b) GACA

- (1) If the airplane operator does not provide its annual Emissions Report in accordance with the timeline as defined in Appendix A, then GACA will engage with the airplane operator to obtain the necessary information. If this proves unsuccessful, then GACA will estimate the airplane operator's annual emissions using the best available information and tools, such as the ICAO CORSIA CO₂ Estimation and Reporting Tool (CERT).

§ 157.31 Error correction to Emissions Reports

(a) If an error in the airplane operator's reported CO₂ emissions is identified by the President, the verification body, or the airplane operator after the reported CO₂ emissions have been submitted to the President, the airplane operator must update the reported CO₂ emissions to address the error. GACA will assess any implications with respect to the airplane

operator's offsetting requirements in previous years and, if necessary, make an adjustment to compensate for the error during the compliance period in which the error has been identified

(b) GACA will report an error in the airplane operator's CO₂ emissions and the follow-up result of the related adjustment to ICAO.

SUBPART D —CO₂ OFFSETTING REQUIREMENTS FROM INTERNATIONAL FLIGHTS AND EMISSIONS REDUCTIONS FROM THE USE OF CORSIA ELIGIBLE FUELS

§ 157.33 CO₂ offsetting applicability

- (a) CO₂ offsetting is applicable to an airplane operator with international flights between States from 1 January 2021 to 31 December 2035, as defined in the document “CORSIA States for Chapter 3 State Pairs”.
- (b) CO₂ offsetting is not applicable to a new entrant airplane operator for three years starting in the year when it meets the requirements in 157.3 and 157.23(b), or until its annual CO₂ emissions exceed 0.1 per cent of total CO₂ emissions from international flights in 2020, whichever occurs earlier. Offsetting must then be applicable in the subsequent year.
- (c) The airplane operators are required to submit the annual CO₂ emission report to the President according to the timeline defined in Appendix A, to facilitate onward transmission of KSA annual CO₂ emission data and to determine offsetting requirements, which will be published in ICAO document entitled “CORSIA 2020 Emissions”
- (d) Worldwide CO₂ emissions will become the basis for defining airplane operator’s offsetting requirements. The final amount of international CO₂ emissions subject to offsetting in a given year (OE) according to the aircraft operator’s verified Emissions Report prior to consideration of the CORSIA eligible fuels and each airplane operator’s amount of CO₂ emissions required to be offset in a given year (OR_y) prior to consideration of the CORSIA eligible fuels, every year, will be calculated as follows.

Table 2: Overview of CO₂ offsetting requirements on a sectoral and individual basis

<i>Year of applicability</i>	<i>%S_y</i>	<i>%O_y</i>
1 January 2021 to 31 December 2029	100%	0%
1 January 2030 to 31 December 2032	(100% - %O _y)	A specified percentage of at least 20%
1 January 2033 to 31 December 2035	(100% - %O _y)	A specified percentage of at least 70%

Where %S_y is percent Sectoral in a given year y and %O_y is percent Individual in a given year y where %O_y = %100 - %S_y

- (e) The Sector Growth Factor applicable for a given year (SGF_y) can be found in the document “CORSIA Annual Sector’s Growth Factor (SGF)”. This information will be produced in accordance with the timeline as defined in Appendix A.

- (f) When applicable according to the timeline in Table 2 above, the airplane operator's Growth Factor for a given year (OGF_y) will be used in accordance with the CO₂ emissions from the verified Emissions Reports submitted by airplane operators attributed to it.

§ 157.35 Emissions reductions from the use of CORSIA eligible fuels

- (a) The airplane operator that intends to claim emissions reductions from the use of CORSIA eligible fuels in a given year (ER_y) must compute emissions reductions.
- (b) If a Default Life Cycle Emissions value is used, then the airplane operator must use the document "CORSIA Default Life Cycle Emissions Values for CORSIA Eligible Fuels" for the calculation in 157.35(a).
- (c) If an Actual Life Cycle Emissions value is used, then an approved Sustainability Certification Scheme must ensure that the methodology, as defined in the document "CORSIA Methodology for Calculating Actual Life Cycle Emissions Values", has been applied correctly.

§ 157.37 Total final CO₂ offsetting requirements for a given compliance period

- (a) The amount of CO₂ emissions required to be offset by the airplane operator, is reduced from the use of CORSIA eligible fuels in a given compliance period.
- (b) If the airplane operator's total final offsetting requirements during a compliance period (FOR_c) is negative, then the airplane operator has no offsetting requirements for the compliance period. These negative offsetting requirements must not be carried forward to subsequent compliance periods.
- (c) The airplane operator's total final offsetting requirements during a compliance period must be rounded up to the nearest ton of CO₂.

SUBPART E — EMISSIONS UNITS

§ 157.39 Applicability

(a) This Subpart is applicable to an aircraft operator who is subject to the offsetting requirements of Subpart D, its emissions in excess of internationally agreed targets must be offset via permanent cancellation of equivalent emissions units.

§ 157.41 Cancelling CORSIA Eligible Emissions Units

(a) The airplane operator must meet its offsetting requirements according to 157.37(d), as calculated by the President, by cancelling CORSIA Eligible Emissions Units in a quantity at least equal to its total final offsetting requirements for a given compliance period. The CORSIA Eligible Emissions Units are only those units described in the document “CORSIA Eligible Emissions Units”, which meet the CORSIA Emissions Unit Eligibility Criteria contained in the document “CORSIA Emissions Unit Eligibility Criteria”.

(a) To fulfill the provisions of offsetting requirements given in 157.37(a), the airplane operator must:

- (1) Cancel such CORSIA Eligible Emissions Units within a registry designated by a CORSIA Eligible Emissions Unit Program in accordance with the timeline as defined in Appendix A; and
- (2) Request each CORSIA Eligible Emissions Unit Program registry make visible on the registry’s public website, information on each of the airplane operator’s cancelled CORSIA Eligible Emissions Units for a given compliance period, as defined in Appendix A.

§ 157.43 Reporting emissions unit cancellation

(a) The airplane operator must submit a report in a prescribed format to the President of the cancellation of CORSIA Eligible Emissions Units carried out in accordance with 157.37 to meet its total final offsetting requirements for a given compliance period, by submitting to the President a copy of the verified Emissions Unit Cancellation Report for approval and a copy of the associated Verification Report, as defined in 157.45. The Emissions Unit Cancellation Report must be submitted to the President according to the timeline in Appendix A.

(b) GACA will submit the aggregated report to ICAO.

(c) Once submitted to ICAO, the following information will be published by GACA, for a given compliance period:

- (1) Total final offsetting requirements over the compliance period for each airplane operator attributed to KSA; and
- (2) Total quantity of emissions units cancelled over the compliance period by each airplane operator to reconcile the total final offsetting requirements, as reported by each airplane operator attributed to KSA.

§ 157.45 Verification of Emissions Unit Cancellation Report

(a) Verification of an airplane operator's Emissions Unit Cancellation Report

- (1) The airplane operator must engage a verification body for the verification of its Emissions Unit Cancellation Report as prescribed by the president.
- (2) The airplane operator must provide access to the operation facilities and relevant information for verification of the report on the cancellation of emissions units. Following the verification of the Emissions Unit Cancellation Report by the verification body, the airplane operator and the verification body must both independently submit, upon authorization by the airplane operator, a copy of the Emissions Unit Cancellation Report and associated Verification Report to the President in accordance with the timeline in Appendix A.
- (3) GACA will perform an order of magnitude check of the Emissions Unit Cancellation.

(b) Verification body

- (1) An airplane operator must engage a verification body accredited by a Member State according to ISO 14065:2013 to be eligible to verify the Emissions Unit Cancellation Report of an airplane operator.
- (2) An airplane operator may choose the same verification body that prepared the Emissions Report or engage a different verification body.
- (3) The accreditation qualification and eligibility conditions for a verification body are given in subpart F.

SUBPART F — VERIFICATION BODY AND ACCREDITATION

§ 157.47 Accreditation Requirements for Verification body.

- (1) The CORSIA Emissions Report and Emissions Unit Cancellation Report are to be verified by an eligible verification body that must hold ISO 14065:2013 accreditation to undertake validation or verification of greenhouse gas (GHG) and the accreditation is issued by a National or International Accreditation Body.
- (2) The eligible verification bodies must apply to the President for approval by demonstrating their capability in terms of facility, documented procedures and availability of competent manpower to perform verification. The President may carry out an audit at the facility of the verification body during the initial approval and subsequent inspection as required based on the quality of the report.

§ 157.49 Documented Procedures and Independent Review System.

- (1) The verification body must have facility and competent personnel having sufficient knowledge of aviation industry and associated Greenhouse Gas inventory to undertake such verification works.
- (2) The verification body must have documented procedures to carry out verification of the reports in accordance with the requirements stipulated in this GACAR and the E-Book 17.1. The verification body must possess all required manuals, standards and independent internal quality review system.
- (3) There must be a detailed procedure for verification and validation plan and sampling plan to ensure that the verification process is carried out systematically.

§ 157.51 Reporting System

- (1) The verification body must submit a copy of the Emission Report and Verification Report independently to the President in a prescribed format providing all required information in the report as per the stipulated timelines.
- (2) Any data gap notwithstanding the threshold level, incomplete and unsatisfactory reports must be reported to the President for investigation and remedial action from the operators.

APPENDIX A TO GACAR PART 157 – TIMELINE & COMPLIANCE MILESTONES

Airport operators' (AO) timeline and compliance milestones for GACAR 157 are presented in Table A-1. The initial milestones are associated with the 2019-2020 Baseline Period, when AOs must first report their fuel use and CO2 emissions to the President, and continue into the subsequent compliance periods. The 2-year Baseline Period emissions establishes each AO's emissions baseline, which will contribute to ICAO's Sector's Growth Factor, the basis for computing CO2 emissions offset requirements. Each subsequent compliance period is 3 years long. Additional details on the program timelines and milestones can be found in E-Book 17.1.

Table A-1: GACAR 157 Timeline & Compliance Milestones

Period		Deadline	Tasks
2019-2020 Baseline Period	2019	1-Jan-19	Initiate monitoring 2019 CO ₂ emissions from international flights
		2020	1-Jan-20
	2020	1-Mar-20	Compile CO ₂ emissions data for a full calendar year (2019)
		31-May-20	Submit verified emissions report to the President
		31-Dec-20	Complete 2020 CO ₂ emissions monitoring
2021-2023 Period	2021	1- Jan to end of the year	Initiate monitoring Current year CO ₂ Emission from international flights
		1-Jan to 31-May	Aeroplane operator should compile prior year emissions data to be verified by a verification body
		31- May	Aeroplane operator and verification body shall both independently submit the verified Emissions Report and associated Verification Report for prior year.
	2022-2023	1- Jan to end of the year	Initiate monitoring Current year CO ₂ Emission from international flights
		1-Jan to 30 Apr	Aeroplane operator should compile prior year emissions data to be verified by a verification body
		30-Apr	Aeroplane operator and verification body shall both independently submit the verified Emissions Report and associated Verification Report for prior year.
		1-Jun to 31 Aug	GACA should conduct an order of magnitude check of the verified Emissions Report for prior year.
		1- Jan to end of the year	Initiate monitoring Current year CO ₂ Emission from international flights
2024-2026 Period	1- Jan to 30 Apr	Aeroplane operator should compile prior year emissions data to be verified by a verification body	
	30-Apr	Aeroplane operator and verification body shall both independently submit the verified Emissions Report and associated Verification Report for prior year.	
	1-May to 31 July	GACA should conduct an order of magnitude check of the verified Emissions Report for prior year.	
	Compliance milestones for the next period (2027-2030) and subsequent periods through 2035 repeat the sequence of tasks from the 2024-2026 period		

APPENDIX B TO GACAR 157 – ESSENTIAL SUPPORTING DOCUMENTS

The documents referred to in this GACAR and listed below are material to support this GACAR and are essential to the implementation of CORSIA. These documents, when published, are available on the ICAO CORSIA website or the President website:

- (1) E-Book 17.1 - Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA);
- (2) Environmental Technical Manual (ICAO Doc 9501), Volume IV – Procedures for demonstrating compliance with the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)
- (3) CORSIA States for Chapter 3 State Pairs;
- (4) ICAO CORSIA CO₂ Estimation and Reporting Tool (CERT);
- (5) CORSIA Eligibility Framework and Requirements for Sustainability Certification Schemes;
- (6) CORSIA Approved Sustainability Certification Schemes;
- (7) CORSIA Sustainability Criteria for CORSIA Eligible Fuels;
- (8) CORSIA Default Life Cycle Emissions Values for CORSIA Eligible Fuels;
- (9) CORSIA Methodology for Calculating Actual Life Cycle Emissions Values;
- (10) CORSIA Eligible Emissions Units;
- (11) CORSIA Emissions Unit Eligibility Criteria;
- (12) CORSIA Central Registry (CCR): Information and Data for the Implementation of CORSIA;
- (13) CORSIA Aeroplane Operator to State Attributions;
- (14) CORSIA 2020 Emissions;
- (15) CORSIA Annual Sector's Growth Factor (SGF); and
- (16) CORSIA Central Registry (CCR): Information and Data for Transparency

APPENDIX C TO GACAR 157 – REPORTING

The procedures specified in this appendix are concerned with the reporting requirements under Subpart B, C and D of this GACAR.

The airplane operators must submit these following reports to the President:

- (1) Airplane information form as prescribed by the president within 1 month of qualifying for CORSIA.
- (2) EMP as prescribed by the president within 3 months of qualifying for CORSIA.
- (3) Emissions report as prescribed by the president, due annually by 31st of May.
- (4) Verified emissions report as prescribed by the president, due annually by 31st of May
- (5) Verified emissions unit cancellation report as prescribed by the president, due annually 30th of April after offsetting starts.

APPENDIX D TO GACAR 157 – CO₂ OFFSETTING REQUIREMENTS FROM INTERNATIONAL FLIGHTS AND EMISSIONS REDUCTIONS FROM THE USE OF CORSIA ELIGIBLE FUELS

CO₂ Offsetting Applicability

(a) From 1 January 2021 to 31 December 2035, CO₂ offsetting is applicable to an airplane operator with international flights between States as defined in the document “CORSIA States for Chapter 3 State Pairs”.

(b) CO₂ offsetting is not applicable to a new entrant airplane operator for three years starting in the year when it meets the requirements in 157.1(a) and 157.17(c), or until its annual CO₂ emissions exceed 0.1 per cent of total CO₂ emissions from international flights in 2020, whichever occurs earlier. Offsetting must then be applicable in the subsequent year.

(c) GACA will calculate, for each of the airplane operators attributed to it, the amount of CO₂ emissions required to be offset in a given year prior to consideration of the CORSIA eligible fuels, using the equation as follows.

$$OR_y = OE * SGF_y$$

where:

OR_y= Air operator’s offsetting requirements in the given year y;

OE= Air operator’s CO₂ emissions covered by 157.1 in the given year y or air operator’s CO₂ emissions covered by 157.1 in 2020, depending upon the option selected by GACA which will be applied to all air operators; and

SGF_y= Sector’s Growth Factor.

Note 1 – The Sector’s Growth Factor applicable for a given year (SGF_y) is provided in the ICAO document entitled “CORSIA Annual Sector’s Growth Factor (SGF)” which is available from the ICAO CORSIA website, and is calculated as $\frac{(SE_y - SE_{B,y})}{SE_y}$, where SE_y = Total sectoral CO₂ emissions covered by 157.1 in the given year y and SE_{B,y} = Average total annual sectoral CO₂ emissions during 2019 and 2020 covered by 157.1 in the given year y.

Note 2 – Sectoral emissions in a given year (SE_y) do not include the CO₂ emissions from new entrants during their exception period, as defined in 157.1(b).

Note 3 – As the States that form the “CORSIA States for Chapter 3 State Pairs”, as defined by 157.1, change over time, the average total annual sectoral CO₂ emissions during 2019 and 2020 covered by these State pairs in the given year y (SE_{B, y}) will be recalculated.

(d) GACA will calculate, for each of the airplane operators attributed to it, the amount of CO₂ emissions required to be offset in a given year prior to consideration of the CORSIA eligible fuels, every year as follows:

$$OR_y = \%S_y * (OE_y * SGF_y) + \%O_y * (OE_y * OGF_y)$$

where:

OR_y = Airplane operator's offsetting requirements in the given year y;

OE_y = Airplane operator's CO₂ emissions covered by 157.1 in the given year y;

$\%S_y$ = Per cent Sectoral emissions growth in the given year y;

$\%O_y$ = Per cent Individual emissions growth in the given year y where $\%O_y = (100\% - \%S_y)$;

SGF_y = Sector's Growth Factor; and

OGF_y = Airplane operator's Growth Factor.

<i>Year of applicability</i>	$\%S_y$	$\%O_y$
1 January 2024 to 31 December 2029	100%	0%
1 January 2030 to 31 December 2032	$(100\% - \%O_y)$	A specified percentage of at least 20%
1 January 2033 to 31 December 2035	$(100\% - \%O_y)$	A specified percentage of at least 70%

Note. – The specified percentage (i.e., $\%O_y$) will be determined by the ICAO Assembly in 2028.

(e) GACA will use the Sector Growth Factor applicable for a given year (SGF_y) in the document “CORSIA Annual Sector's Growth Factor (SGF)”. This information will be produced in accordance with the timeline as defined in Appendix 1.

(f) GACA will calculate, when applicable, the airplane operator's Growth Factor for a given year (OGF_y) in accordance with the CO₂ emissions from the verified Emissions Reports submitted by airplane operators attributed to it, as follows:

$$OGF_y = \frac{(OE_y - OE_{B,y})}{OE_y}$$

where:

OE_y = Total airplane operator's CO₂ emissions covered by 157.1 in the given year y; and

$OE_{B,y}$ = Average total annual airplane operator's CO₂ emissions during 2019 and 2020 covered by 157.1 in the given year y.

(g) GACA will upon calculating the offsetting requirements in a given year (OR_y) of each of the airplane operators attributed to it, inform the airplane operator of its offsetting requirements according to the timeline as defined in Appendix 1.

Emissions Reductions from the use of CORSIA Eligible Fuels

(a) The airplane operator that intends to claim emissions reductions from the use of CORSIA eligible fuels in a given year must compute emissions reductions as follows:

$$ER_y = FCF * \left[\sum_f MS_{f,y} * \left(1 - \frac{LS_f}{LC} \right) \right]$$

where:

ER_y = Emissions reductions from the use of CORSIA eligible fuels in the given year y (in tons);

FCF = Fuel conversion factor, equal to 3.16 kg CO₂/kg fuel for Jet-A fuel / Jet-A1 fuel and 3.10 kg CO₂/kg fuel for AvGas or Jet-B fuel;

$MS_{f,y}$ = Total mass of a neat CORSIA eligible fuel claimed in the given year y (in tons), as described in E-Book 17.1;

LS_f = Life cycle emissions value for a CORSIA eligible fuel (in gCO₂e/MJ); and

LC = Baseline life cycle emissions values for aviation fuel, equal to 89 gCO₂e/MJ for jet fuel and equal to 95 gCO₂e/MJ for AvGas.

Note 1 – The ratio $\left(1 - \frac{LS_f}{LC} \right)$ is also referred to as the emissions reduction factor (ERF_f) of a CORSIA eligible fuel.

Note 2 – For each of the CORSIA eligible fuels claimed, the total mass of the neat CORSIA eligible fuel claimed in the given year y needs to be multiplied by its emissions reduction factor (ERF_f). Then the quantities are summed for all CORSIA eligible fuels.

(b) If a Default Life Cycle Emissions value is used, then the airplane operator must use the document “CORSIA Default Life Cycle Emissions Values for CORSIA Eligible Fuels” for the calculation in 157.31(a).

(c) If an Actual Life Cycle Emissions value is used, then an approved Sustainability Certification Scheme must ensure that the methodology, as defined in the document “CORSIA Methodology for Calculating Actual Life Cycle Emissions Values”, has been applied correctly.

Total Final CO₂ Offsetting Requirements for a Given Compliance Period with Emissions Reductions from the use of CORSIA Eligible Fuels

(a) The amount of CO emissions required to be offset by the airplane operator, after taking into account emissions reductions from the use of CORSIA eligible fuels in a given compliance period, will be calculated by GACA as follows:

$$FOR_c = (OR_{1,c} + OR_{2,c} + OR_{3,c}) - (ER_{1,c} + ER_{2,c} + ER_{3,c})$$

where:

FOR_c = Airplane operator's total final offsetting requirements in the given compliance period c ;

$OR_{y,c}$ = Airplane operator's offsetting requirements in the given year y (where $y = 1, 2$ or 3) of the compliance period c ; and

FOR_c = Airplane operator's total final offsetting requirements in the given compliance period c ;

$ER_{y,c}$ = Emissions reductions from the use of CORSIA eligible fuels in the given year y (where $y = 1, 2$ or 3) of the compliance period c .

(b) If the airplane operator's total final offsetting requirements during a compliance period is negative, then the airplane operator has no offsetting requirements for the compliance period. These negative offsetting requirements cannot be carried forward to subsequent compliance periods.

(c) The airplane operator's total final offsetting requirements during a compliance period must be rounded up to the nearest ton of CO_2 .

(d) GACA will, upon calculating the total final offsetting requirements for a given compliance period of each of the airplane operators attributed to it, inform the airplane operator of its total final offsetting requirements according to the timeline as defined in Appendix A.