



SCRAG/23 - REPORT

International Civil Aviation Organization

REPORT OF

**THE TWENTY-THIRD MEETING OF THE
SECURE AVIATION DATA INFORMATION SERVICE
(SADIS) COST RECOVERY ADMINISTRATIVE GROUP
(SCRAG/23)**

Virtual, 30 November 2022

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INTRODUCTION

Place and Duration

1. The Twenty-Third Meeting of the Secure Aviation Data Information Service (SADIS) Cost Recovery Administrative Group (SCRAG) was conducted virtually on Wednesday, 30 November 2022.

Attendance

2. The meeting was attended by the following Members and representatives from the Regions: Ms. Zou Juan from the Asia and Pacific Region, and Mr. Matthias Garke from the European Region. Also in attendance were the Provider State participants and ICAO representatives. The list of attendees is shown in Appendix A and the working papers issued for the meeting are listed in Appendix B.

Officers and Secretariat

3. Ms. Zou Juan from the Asia and Pacific Region was Chairperson of the meeting. Ms. Joanna Zorbas, Joint Financing Officer, ICAO Headquarters in Montréal, served as Secretary.

Agenda

4. The following agenda was adopted:

Agenda Item 1: Review of SCRAG's Terms of Reference, Composition and Working Arrangements

Agenda Item 2: Consideration of issues relevant to the SCRAG's work addressed by the Meteorology Panel (METP) Working Group on Meteorological Operations Group (WG-MOG)

Agenda Item 3: Review of actual SADIS costs and cost shares for the period 1 January to 31 December 2021

Agenda Item 4: Review of estimated SADIS costs and cost shares for the period 1 January to 31 December 2023 and estimated costs for the next two to five years

Agenda Item 5: Review of the status of SADIS payments for the current year (2022) invoices

Agenda Item 6: Amendments to Annexes of the SADIS Agreement

Agenda Item 7: Future work and arrangements for the SCRAG/24 Meeting

Agenda Item 8: Other business

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AGENDA ITEM 1: REVIEW OF SCRAG’S TERMS OF REFERENCE, COMPOSITION AND WORKING ARRANGEMENTS

1.1 Ms. Zou Juan from the Asia and Pacific Region participated in the capacity of Chairperson for the SCRAG/23 meeting.

1.2 Article VII, paragraph II of the SADIS Agreement states that the SCRAG shall be composed of one Party from each region and that regions, which in the aggregate, are responsible for more than 50 per cent of the total current assessments, shall nominate an additional Party. Only one Party from each region was required for the SCRAG/23 meeting since all the regions have a percentage of total assessments below the 50 per cent level. A second member has been nominated from the European region by the European Air Navigation Planning Group (EANPG) as the percentage of total assessments for the region approximates and sometimes surpasses the 50 per cent level.

1.3 The Group noted its Terms of Reference assigned by Article VII of the SADIS Agreement, which reads:

“The SADIS Cost Allocation and Recovery (SCAR) arrangement shall be administered by a group, the *SADIS Cost Recovery Administrative Group* (SCRAG) which shall:

- a) assess the annual cost share attributable to each Party, including reassessments arising from new Parties adhering to this Agreement; and
- b) audit the costs of the SADIS provision and any related financial activities, incurred by the Provider State and subject to cost sharing.”

1.4 The Group was informed that ICAO had received a formal notification of accession to the SADIS Agreement from 71 States. Three of these States are not presently receiving the service and 12 of these States are Least Developed Countries (LDCs), which are exempted from payment of SADIS cost share. The Group was also informed that 50 other States receiving the SADIS service had not yet acceded to the SADIS Agreement. Of these States, 23 are LDCs. States that have formally acceded to the SADIS Agreement and States that have not are listed in Appendix C.

1.5 The Group discussed encouraging the Accession of States to the SADIS Agreement. In this regard, the following conclusion was formulated:

SCRAG Conclusion 23/1 —

The SADIS Manager will liaise with the Met Officers in the ICAO Regional Offices and present information to the relevant Planning and Implementation Regional Group (PIRG) meetings to encourage States who have not yet acceded to the SADIS agreement to do so.

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AGENDA ITEM 2: CONSIDERATION OF ISSUES RELEVANT TO THE SCRAG'S WORK ADDRESSED BY THE METEOROLOGY PANEL (METP) WORKING GROUP ON METEOROLOGICAL OPERATIONS GROUP (WG-MOG)

2.1 The Group was informed of the main conclusions of the Eighteenth Meeting of the Meteorology Panel (METP) Working Group on Meteorological Operations Group (WG-MOG) for SADIS (METP WG-MOG/18, conducted virtually on 28 April 2022) provided by the work stream lead of the METP WG-MOG.

2.2 In accordance with Action 18/05 of METP WG-MOG/18, the Group noted the Statement of SADIS operational efficacy received from the Rapporteur of the METP WG-MOG, relaying the information from the Group at its Eighteenth Meeting to the SCRAG that the operational efficacy of the SADIS had continued to be satisfactory, meeting all operational requirements since the METP WG-MOG/15 Meeting (Virtual, 15 April 2021).

2.3 The following Actions/Decisions relating to the SADIS Service were documented in the report of the METP WG-MOG/18:

MOG Action agreed 18/01 — Terms of Reference

That;

- a) the METP-WG/MOG (SADIS/WIFS) meeting accepts the proposed updates to the Terms of Reference as shown in Appendix B [of the METP/WG-MOG18 report]; and
- b) the ICAO Secretariat puts the finalised Terms of Reference document onto the ICAO secure website (replacing the previous copy).

Status: Complete

MOG Action agreed 18/02: 2022 SADIS Efficacy Survey

That the web hosted SADIS Efficacy questionnaire, using the questions shown in Appendix D [of the METP/WG-MOG19], be used for the 2022 survey;

- a) the survey will commence on 1 July 2022 and end on 31 December 2022;
- b) users will be notified of the survey via SADIS administrative messages and e-mail; and,
- c) The Technical Officer for Meteorology in the ICAO Air Navigation Bureau will inform the ICAO regional meteorological officers of the survey and encourage them to issue state letters to encourage participation in the survey. The State Letter should include a copy of the questions shown in Appendix D [of the MOG18 report].

Status: The survey is in progress.

Documentation relating to SADIS was reviewed and updated. There was no need to make any adjustments to the SADIS Agreement Annex I and II. The following actions were agreed:

MOG Action agreed 18/03: Status of Implementation of SADIS

That the ICAO Secretariat be invited to make available the updated Status of Implementation of SADIS document, as shown in Appendix E [of the METP/WG-MOG18 report], on the ICAO public website (replacing the previous copy) once it is finalised.

Status: Complete. Note the ICAO public website can be found here:

<https://www.icao.int/airnavigation/METP/Pages/Public-Documents.aspx>

The OPMET content of SADIS was reviewed and compared against the data available on WIFS to identify discrepancies. A discussion was also held about how the content of the SADIS OPMET catalogue had been expanded to cater for other data types beyond METAR and TAFs. The following actions were agreed:

MOG Action agreed 18/04: SADIS OPMET Catalogue

That;

- a) the April 2022 update to the SADIS OPMET catalogue, once finalised is published on SADIS and <https://www.icao.int/airnavigation/METP/Pages/Public-Documents.aspx> (replacing the previous version).
- b) the catalogue is updated at least annually

Status: Complete.

MOG Action agreed 18/05¹: Annual statement of operational efficacy of SADIS 2021/2022

That the Rapporteur of the METP-WG/MOG be invited to inform the Secretary of the SCRAG (who will pass this on to the Chair of the SCRAG) that the SADIS continued to meet the operational requirements during the period 2021/2022.

Status: Complete. This is included in Appendix A.

MOG Decision 18/01 – SADIS Management Report

That the SADIS Management report meets the reporting requirement set forth in the Terms of Reference.

MOG Action 6/1 - Alignment of OPMET content from SADIS and WIFS

That, in coordination with the European OPMET Data Management Group, the SADIS and the WIFS provider states be invited to:

- a) continue efforts to align of the OPMET content of SADIS and WIFS for scheduled OPMET information (METAR and TAF) and non-scheduled OPMET information (such as AIRMET and Special AIREP);
- b) report on progress in respect of a) above to the next WG-MOG Meeting.

Status: ongoing

SCRAG Conclusion 23/2 —

The Group recommended that the Chair of the METP-WG/MOG forward the Annual Statement of Operational Efficacy to the Secretary of the SCRAG, who in turn will send the report to the Chairperson of the SCRAG subsequent to their nomination at the start of the annual SCRAG meeting.

¹ Note: this was incorrectly labelled as Action 15/02 in the MOG18 report.

AGENDA ITEM 3: REVIEW OF ACTUAL SADIS COSTS AND COST SHARES FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2021

Review of the 2021 Actual SADIS Costs

3.1 The Group reviewed the actual costs of £ 471 079 for providing the SADIS services in the year 2021. These actual costs are detailed in Appendix E, Column “Actual 2021” and the cost share per State is presented in Column 4 of Appendix D. A summary of these costs is presented in Table 1 (A).

TABLE 1 (A)
SUMMARY OF ACTUAL SADIS COSTS
FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2021

Cost Item	Actual Costs (UK £)
UK Met Office	174 231
UK NATS SADIS Gateway	269 500
UK CAA administrative costs	980
Sub-total UK	444 711
ICAO support service costs	26 368
TOTAL	471 079

Review of the 2021 Actual SADIS Cost Shares

3.2 The Group noted that two States did not receive the service throughout the full 2021 year. Uzbekistan was assessed for two full months of service since they only started receiving the service on 1 November 2021. Iraq was disconnected from SADIS services on 20 January 2021 and consequently, their share of actual 2021 cost was zero, as they had no full months of service during the year.

3.3 The Group determined that the actual cost shares for the period 1 January to 31 December 2021 be borne by the States’ party to the SADIS Agreement that are not exempted from payment because they are not categorized as LDCs. On the basis of the number of available tonne-kilometres (ATKs) in scheduled services for 2021, in accordance with Article XI, paragraph 3 of the SADIS Agreement, the cost share in percentage terms and the share in £ sterling to be borne by each State participating in the SCAR Arrangement are shown in Appendix D.

3.4 During the SCRAG/23 meeting, the Group agreed to approve through correspondence an update to the information presented during the meeting in order to enhance the completeness of the reported ATKs and to fairly distribute cost between all States.

3.5 The Group noted that in determining State assessments, ATKs increased by 4.6 per cent in 2021 compared to 2020 ATKs. The share related to each individual State however varied. In accordance with Article XI, paragraph 1 of the SADIS Agreement, the apportionment of costs between States is based on the total number of ATKs in scheduled international and domestic services. As a result, States that maintained a higher level of domestic services throughout 2021, or experienced a more significant increase in international service than other States, may have a higher apportionment of the total cost of the SADIS services for the year in comparison to their proportion of 2020 ATKs.

3.6 The Group noted the adjustment for 2021; an over-recovery of £51 871.00 represents the difference between the 2021 actual costs and the 2021 estimated costs approved by the SCRAG/21 meeting, as indicated in Table 1 (B).

TABLE 1 (B)

**ADJUSTMENT OF ACTUAL SADIS COSTS TO ESTIMATED SADIS COSTS
FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2021**

	Cost Item	Actual Costs (UK £)	Reference
(1)	2021 Actual Cost	471 079	Table 1 (A)
(2)	2021 Estimated Cost	522 950	SCRAG/21 Report, Table 3
(3)	Over-recovery for 2021 (to be subtracted from the amount billed in 2023)	-51 871	(1) - (2) <i>(see Appendix D, column 6 and Appendix H, column 2)</i>

The Group formulated the following Conclusion:

SCRAG Conclusion 23/3 —

In accordance with Article XI, paragraph 3, of the SADIS Agreement, the SCRAG/23 meeting approves the actual cost shares for 2021, as shown in Appendix D to the SCRAG/23 Report for the States participating in the SCAR Arrangement.

SCRAG Conclusion 23/4 —

Approve Appendix D through correspondence subsequent to the meeting in order to reflect updated ATK data to enhance the completeness of the reported ATKs and to fairly distribute cost between all States.

3.7 The Group received information from the Observer from the United Kingdom on the status of payment of the cost shares of 2021 as at 1 November 2022. It was noted that a total amount of £ 488 874.52 was collected for 2021 (see Appendix F, page F-2). A balance of £ 714.48, which represents the sum of three States with balances owed, remains outstanding. Outstanding 2021 credits total £ 1 131.47, resulting in a net balance of £ -416.99, as indicated in the final column of Appendix F, page F-2.

3.8 The Group noted that, consistent with Conclusion 14/7, which was reached during the SCRAG/14 meeting, the small additional costs incurred in the process of obtaining payment of SADIS invoices (these include bank charges and courier costs), have been added to the administrative costs for the SADIS Provider State.

3.9 Having noted the information in Table 1 (A) and paragraphs 3.4 to 3.7 above, the Group agreed that the over-recovery of SADIS cost shares for the year 2021 amounts to -£ 4 168, as shown in Table 2 below. The over-recovery of 2021 is the amount subject to collection for 2021 (£ 484 707), less the amounts collected for 2021 and prior years (£ 488 875).

TABLE 2
OVER-RECOVERY FOR 2021

		UK £	References
(1)	Actual costs for 2021	471 079	Table 1 (A)
(2)	Over-recovery for 2019	13 628	SCRAG/21 Report, Table 2
(3)	Subject to collection for 2021	484 707	(1) + (2)
(4)	Collected from States for 2021 (as at 1 November 2022)	-488 875	Appendix F – page F-2 (column 3 minus column 5)
(5)	Collected from States for years prior to 2021 (as at 1 November 2022)	0	Appendix F – page F-3 (column 3)
(6)	Over-recovery for 2021 (to be subtracted from the assessments for 2023)	-4 168	(3) + (4) + (5) (see Appendix G, column 5)

The Group formulated the following Conclusion:

SCRAG Conclusion 23/5 —

An over-recovery, amounting to £4 168 of the SADIS cost shares for the year 2021, will be taken into account in the calculation of the SADIS cost shares for the year 2023, in accordance with Article XI, paragraph 4, of the SADIS Agreement.

AGENDA ITEM 4: REVIEW OF ESTIMATED SADIS COSTS AND COST SHARES FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2023 AND ESTIMATED COSTS FOR THE NEXT TWO TO FIVE YEARS

Review of the 2023 Estimated SADIS Costs

4.1 The cost estimates for 2023 are detailed in the column “Est 2023”, in Appendix E, and total £ 554 263. A summary of these costs are presented in Table 3.

TABLE 3
SUMMARY OF ESTIMATED SADIS COSTS
FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2023

Cost Item	Estimated Costs (UK £)
UK Met Office	206 600
UK NATS SADIS Gateway	314 163
UK CAA administrative costs	1 000
Sub-total UK	521 763
ICAO support services costs	32 250
TOTAL	554 263

4.2 The Group considered the over-recovery in Table 2 in the calculation of the amount to be assessed under the SADIS Agreement for 2023. The calculation of the amount to be assessed is presented in Table 4.

TABLE 4
AMOUNT TO BE ASSESSED UNDER THE SADIS AGREEMENT FOR 2023

		UK £	References
(1)	Over-recovery for 2021	-4 168	Table 2
(2)	Estimated costs for 2023	554 263	Table 3
(3)	Amount to be assessed for 2023	550 095	(1) + (2) <i>(see Appendix G, column 6)</i>

4.3 The Group determined that the cost shares for the period 1 January to 31 December 2023, be borne by the States’ party to the SADIS Agreement that are not exempted from payment because they are on the list of the Least Developed Countries, on the basis of the number of ATKs in scheduled services for 2021, in accordance with Article XI, paragraph 3, of the SADIS Agreement.

4.4 The cost share in percentage terms and the share in £ sterling, plus the share of under-recovery for 2021, attributable to each State, are shown in Appendix G. Appendix H shows the amounts to be billed to each State in 2023, corresponding to the adjustment for 2021 (Appendix D), plus the assessment for 2023 (Appendix G), less any deduction of unused credit balances or other adjustments from previous years.

TABLE 5**AMOUNT TO BE BILLED UNDER THE SADIS AGREEMENT FOR 2023**

		UK £	References
(1)	Amount to be Assessed for 2023	550 095.00	Table 4
(2)	Adjustment of Actual SADIS Costs to Estimated Costs for 2021	-51 871.00	Table 1 (B)
(3)	Deduction of Unused Credit Balances from Previous Year or Other Adjustments	-1 198.64	Appendix H (column 4)
(4)	Amount to be Billed for 2023	497 025.36	(1)+(2)+(3) (see Appendix H, column 5)

The Group formulated the following Conclusion:

SCRAG Conclusion 23/6 —

The estimated cost shares for 2023 as shown in Appendix G to the SCRAG/23 Report for each State participating in the SCAR Arrangement are approved by the SCRAG/23 meeting for collection by the United Kingdom.

SCRAG Conclusion 23/7 —

Approve Appendix G through correspondence subsequent to the meeting in order to reflect updated ATK data to enhance the completeness of the reported ATKs and to fairly distribute cost between all States.

Cost Estimates for the Years 2024 to 2026

4.5 The Group considered the estimates provided by the United Kingdom (Appendix E) and summarized in Table 6 for SADIS services for the years 2024 to 2026, as well as the estimates for the United Kingdom administrative costs and the costs of ICAO support services.

TABLE 6
SUMMARY OF ESTIMATED SADIS COSTS
FOR THE YEARS 2024, 2025 AND 2026

Cost Item	Estimated Costs 2024 (UK £)	Estimated Costs 2025 (UK £)	Estimated Costs 2026 (UK £)
UK Met Office	284 400	311 400	335 500
UK NATS SADIS Gateway	332 550	346 584	355 583
UK CAA administrative costs	1 000	1 000	1 000
Sub-total UK	617 950	658 984	692 083
ICAO support services costs	33 000	33 500	34 000
TOTAL	650 950	692 484	726 083

4.6 Members noted and discussed the expected increase in SADIS operating costs attributable to the UK Met Office from 2024 to 2026. This is due to the introduction of much higher resolution of the World Area Forecast System (WAFS) data sets (which cannot be published via the SADIS FTP) and the requirements set out in the ICAO Global Air Navigation Plan for meteorological data to be provided via the system-wide information management (SWIM) compliant systems (which the SADIS FTP does not currently meet). These changes have been documented and accepted by the MET Panel MOG SADIS and WAFS Working groups, and the METP/5 Meeting (7-16 June 2021). The SADIS manager will make the MOG members aware of the expected operating costs at the next MOG-SADIS meeting in early May 2023.

4.7 The Group discussed WP/15, Cost Recovery Methods. Given the significance operational, administrative, and billing impact of this topic, an additional working paper or presentation will be presented next year to outline options that could be considered as a basis for assessing States for SADIS services in the future.

SCRAG Conclusion 23/8 —

An in-depth analysis in the form of a paper or presentation will be prepared for the SRCRAG/24 detailing various cost recovery options that may be considered as a basis for assessing States for SADIS services in the future.

**AGENDA ITEM 5: REVIEW OF THE STATUS OF SADIS PAYMENTS FOR THE CURRENT YEAR (2022)
INVOICES**

5.1 The Group reviewed WP/12 on the status of payment for the current (2022) year, presented by the United Kingdom.

5.2 The Group formulated the following Conclusion:

SCRAG Conclusion 23/9 —

*With the assistance of ICAO Regional Met Officers, the SADIS Provider will continue to make all efforts to contact and remind the States of their outstanding payments. The Group agreed that the SADIS Provider State be invited to withdraw access to the secure SADIS FTP for those States who, as at 1200 UTC on **18 January 2023**, have cumulative outstanding payments over GBP 100 due for any invoice dated 2022 or earlier.*

AGENDA ITEM 6: AMENDMENTS TO ANNEXES OF THE SADIS AGREEMENT

6.1 The Group viewed the current version of Annex I, SADIS Services, to the SADIS Agreement, which was last reviewed and updated by the METP WG-MOG SADIS in April 2021 and incorporated into the SADIS agreement after the SCRAG/22 meeting. No additional changes are required at the present time.

6.2 As a result of its review, the Group adopted the following Conclusion:

SCRAG Conclusion 23/10 —

With the consent of the United Kingdom as the SADIS Provider State, in accordance with Article XVII, paragraph 5, of the SADIS Agreement, Annex I, SADIS Services, of the SADIS Agreement has not been amended and is presented as indicated in Appendix I to the SCRAG/22 Report.

6.3 The Group reviewed the current version of Annex II, SADIS Inventory, to the SADIS Agreement, which was last reviewed and updated by the METP WG-MOG SADIS in April 2021 and incorporated into the SADIS agreement after the SCRAG/22 meeting. No additional changes are required at the present time.

6.4 As a result of its review, the Group adopted the following Conclusion:

SCRAG Conclusion 23/11 —

With the consent of the United Kingdom as the SADIS Provider State, in accordance with Article XVII, paragraph 5, of the SADIS Agreement, Annex II, SADIS Inventory, of the SADIS Agreement has not been amended and is presented as indicated in Appendix J to the SCRAG/22 Report.

AGENDA ITEM 7: FUTURE WORK AND ARRANGEMENTS FOR THE SCRAG/23 MEETING

7.1 The Group determined the provisional location and date for the Twenty-Fourth SCRAG meeting to be 29 November 2023 in the UK, and it was noted that if an in person meeting is held, it will also be hosted virtually to enable remote attendance.

AGENDA ITEM 8: OTHER BUSINESS

8.1 The Group expressed its appreciation for the assistance provided by the UK Met Office in conducting the virtual meeting.

APPENDIX A

LIST OF PARTICIPANTS

Members

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APPENDIX B

LIST OF SCRAG/22 WORKING PAPERS

Working Paper No.	Agenda Item	Subject	Presented by
1	1 to 9	Provisional agenda	Secretariat
2	1, 3 & 4	Status of accession to the SADIS Agreement	Secretariat
3	2, 4 & 6	Reports on Conclusions of the METP WG-MOG/18 meeting	United Kingdom
4	3	2021 ICAO actual SADIS administrative costs	Secretariat
5	3	2021 actual SADIS costs	United Kingdom
6	3	Status of payments for the year 2021	United Kingdom
7	3	Summary of actual costs and cost shares for the year 2021	Secretariat
8	4	2023 ICAO estimated SADIS administrative costs	Secretariat
9	4	Estimated SADIS costs: two to five years	United Kingdom
10	4	Summary of estimated costs and assessments for the year 2023	Secretariat
11	6	Amendment to Annex II, SADIS Inventory, to the SADIS Agreement	Secretariat
12	5	Status of payments for the current (2022) year	United Kingdom
13	6	Amendments to Annex I of the SADIS Agreement	United Kingdom
14	5	Credit balances	Secretariat
15	4	Cost Recovery Methods	United Kingdom

STATES WHICH FORMALLY ACCEDED TO THE SADIS AGREEMENT

STATES	LDC's Exempted
Albania	
Armenia	
Australia	
Austria	
Bahrain	
Bangladesh	X
Belgium	
Botswana	
Cameroon	
China	
Congo	
Côte d'Ivoire	
Croatia	
Cyprus	
Czechia	
Democratic People's Republic of Korea *	
Democratic Republic of the Congo	X
Denmark	
Egypt	
Estonia	
Finland	
France	
Gabon	
Gambia	X
Georgia	
Germany	
Greece	
Hungary	
Israel	
Italy	
Jordan	
Kazakhstan	
Kuwait	
Kyrgyzstan	
Lao People's Democratic Republic	X
Latvia	
Lesotho	X
Lithuania	
Madagascar	X
Malta	
Mauritius	
Mongolia *	
Morocco	
Netherlands	
Norway	
Oman	
Pakistan	
Poland	
Portugal	
Republic of Moldova	
Romania	
Senegal	X
Slovakia	
Slovenia	

* Although they formally acceded to the SADIS Agreement, these States do not presently receive the service.

STATES WHICH FORMALLY ACCEDED TO THE SADIS AGREEMENT

Spain	
Sweden	
Switzerland	
Tajikistan	
Thailand	
Togo	X
Tunisia	
Turkmenistan *	
Uganda	X
Ukraine	
United Arab Emirates	
United Kingdom	
United Republic of Tanzania	X
Uzbekistan	
Viet Nam	
Yemen	X
Zambia	X

* Although they formally acceded to the SADIS Agreement, these States do not presently receive the service.

STATES WHICH HAVE NOT YET ACCEDED TO THE SADIS AGREEMENT

STATES	LDC's Exempted
Algeria	
Angola	X
Azerbaijan	
Benin	X
Bosnia and Herzegovina	
Bulgaria	
Burkina Faso	X
Burundi	X
Cabo Verde	
Cambodia	X
Central African Republic	X
Chad	X
Comoros	X
Djibouti	X
Equatorial Guinea	
Eswatini	
Ethiopia	X
Ghana	
Guinea	X
Guinea-Bissau	X
Iceland	
India	
Indonesia	
Ireland	
Kenya	
Liberia	X
Libya	
Luxembourg	
Malawi	X
Maldives	
Mali	X
Mauritania	X
Montenegro	
Mozambique	X
Namibia	
Niger	X
Nigeria	
North Macedonia	
Qatar	
Rwanda	X
Sao Tome and Principe	X
Saudi Arabia	
Serbia	
Seychelles	
Somalia	X
South Africa	
South Sudan	X
Sudan	X
Turkey	
Zimbabwe	

APPENDIX D
ACTUAL COST SHARES FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2021*
AND ADJUSTMENT FOR 2021

STATES	2021 Available Tonne-Kilometres in Scheduled Services (000)	Percentage Cost Share	Share of 2021 Actual Costs (£ Sterling)	Share of 2021 Estimated Costs (SCRAG/21) (£ Sterling)	Adjustment for 2021 (£ Sterling)
Albania	20 196	0.004%	18.86	19.00	- 0.14
Algeria	242 251	0.048%	226.21	587.01	- 360.80
Armenia	26 657	0.005%	24.89	24.18	0.71
Australia	6 808 273	1.350%	6 357.40	14 676.23	- 8 318.83
Austria	3 563 241	0.706%	3 327.27	3 875.68	- 548.41
Azerbaijan	3 547 981	0.703%	3 313.02	425.52	2 887.50
Bahrain	2 009 829	0.398%	1 876.73	1 625.13	251.60
Belarus	255 225	0.051%	238.32	282.68	- 44.36
Belgium	4 507 005	0.893%	4 208.53	3 464.25	744.28
Bosnia and Herzegovina (note 1)	0	0.000%	0.00	1.43	- 1.43
Botswana	12 681	0.003%	11.84	10.34	1.50
Bulgaria	6 136	0.001%	5.73	89.01	- 83.28
Cabo Verde	2 312	0.000%	2.16	116.70	- 114.54
Cameroon	13 324	0.003%	12.44	22.25	- 9.81
China: - Beijing	119 168 355	23.622%	111 276.46	104 198.38	7 078.08
- Hong Kong	12 933 142	2.564%	12 076.65	21 474.82	- 9 398.17
- Macao	227 111	0.045%	212.07	516.49	- 304.42
Congo	11 660	0.002%	10.89	31.05	- 20.16
Côte d'Ivoire	166 481	0.033%	155.46	235.46	- 80.00
Croatia	111 572	0.022%	104.18	128.90	- 24.72
Cyprus	35 955	0.007%	33.57	24.93	8.64
Czechia	353 970	0.070%	330.53	574.40	- 243.87
Denmark	880 056	0.174%	821.77	1 373.22	- 551.45
Egypt	3 302 817	0.655%	3 084.09	3 082.31	1.78
Equatorial Guinea	2 449	0.000%	2.29	29.92	- 27.63
Estonia (note 1)	0	0.000%	0.00	0.04	- 0.04
Eswatini	1 411	0.000%	1.32	2.28	- 0.96
Finland	2 531 271	0.502%	2 363.64	3 993.37	- 1 629.73
France	21 619 713	4.285%	20 187.95	20 709.30	- 521.35
Gabon (note 1)	0	0.000%	0.00	1.77	- 1.77
Georgia	43 345	0.009%	40.47	111.79	- 71.32
Germany	27 664 315	5.484%	25 832.25	25 080.42	751.83
Ghana	27 275	0.005%	25.47	22.60	2.87
Greece	1 296 142	0.257%	1 210.31	999.50	210.81
Hungary	4 171 536	0.827%	3 895.28	4 229.86	- 334.58
Iceland	918 592	0.182%	857.76	1 283.78	- 426.02
India	14 147 468	2.804%	13 210.56	17 195.26	- 3 984.70
Indonesia	7 229 195	1.433%	6 750.44	9 258.02	- 2 507.58
Iraq (note 2)	0	0.000%	0.00	457.98	- 457.98
Ireland	11 049 017	2.190%	10 317.30	14 417.85	- 4 100.55
Israel	1 924 685	0.382%	1 797.22	2 567.11	- 769.89
Italy	2 137 057	0.424%	1 995.53	4 510.71	- 2 515.18
Jordan	908 954	0.180%	848.76	995.59	- 146.83
Kazakhstan	1 665 996	0.330%	1 555.67	1 162.82	392.85
Kenya	1 360 435	0.270%	1 270.34	1 815.00	- 544.66
Kuwait	1 233 859	0.245%	1 152.15	2 200.93	- 1 048.78
Kyrgyzstan	35 816	0.007%	33.44	205.30	- 171.86
Latvia	495 086	0.098%	462.30	504.08	- 41.78
Libya	212 175	0.042%	198.12	170.69	27.43
Lithuania	262	0.000%	0.24	0.38	- 0.14

**ACTUAL COST SHARES FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2021*
AND ADJUSTMENT FOR 2021**

STATES	2021 Available Tonne-Kilometres in Scheduled Services (000)	Percentage Cost Share	Share of 2021 Actual Costs (£ Sterling)	Share of 2021 Estimated Costs (SCRAG/21) (£ Sterling)	Adjustment for 2021 (£ Sterling)
Luxembourg	12 006 003	2.380%	11 210.91	6 515.69	4 695.22
Maldives	19 770	0.004%	18.46	85.07	- 66.61
Malta	145 279	0.029%	135.66	264.19	- 128.53
Mauritius	317 239	0.063%	296.23	753.79	- 457.56
Montenegro	199	0.000%	0.19	36.77	- 36.58
Morocco	2 041 489	0.405%	1 906.29	2 493.96	- 587.67
Namibia	156	0.000%	0.15	41.58	- 41.43
Netherlands	16 000 311	3.172%	14 940.69	14 128.28	812.41
Nigeria	370 187	0.073%	345.67	306.32	39.35
North Macedonia (note 1)	0	0.000%	0.00	29.89	- 29.89
Norway	1 990 631	0.395%	1 858.80	4 223.30	- 2 364.50
Oman	964 506	0.191%	900.63	2 604.27	- 1 703.64
Pakistan	1 476 103	0.293%	1 378.35	1 862.88	- 484.53
Poland	1 559 716	0.309%	1 456.42	2 094.13	- 637.71
Portugal	3 726 773	0.739%	3 479.97	4 145.89	- 665.92
Qatar	40 732 712	8.074%	38 035.20	28 985.77	9 049.43
Republic of Moldova	139 534	0.028%	130.29	175.28	- 44.99
Romania	378 406	0.075%	353.35	551.97	- 198.62
Russian Federation	36 020 114	7.140%	33 634.69	26 853.85	6 780.84
Saudi Arabia	8 590 292	1.703%	8 021.40	8 475.45	- 454.05
Senegal	87 814	0.017%	82.00	37.28	44.72
Serbia	300 399	0.060%	280.51	287.81	- 7.30
Seychelles	33 327	0.007%	31.12	55.18	- 24.06
Slovakia	1 089	0.000%	1.02	1.16	- 0.14
Slovenia	2 246	0.000%	2.10	62.61	- 60.51
South Africa	1 316 800	0.261%	1 229.60	3 712.69	- 2 483.09
Spain	10 540 346	2.089%	9 842.31	11 486.30	- 1 643.99
Sweden	843 573	0.167%	787.71	1 416.99	- 629.28
Switzerland	5 676 513	1.125%	5 300.59	6 803.67	- 1 503.08
Tajikistan	67 870	0.013%	63.38	215.65	- 152.27
Thailand	2 911 646	0.577%	2 718.82	13 604.69	- 10 885.87
Tunisia	417 396	0.083%	389.75	513.15	- 123.40
Turkey	31 933 701	6.330%	29 818.90	21 351.30	8 467.60
Ukraine	796 753	0.158%	743.99	1 344.17	- 600.18
United Arab Emirates	42 549 066	8.434%	39 731.26	51 721.31	- 11 990.05
United Kingdom	18 849 384	3.736%	17 601.05	30 799.12	- 13 198.07
Uzbekistan (note 3)	146 489	0.029%	136.79	0.00	136.79
Viet Nam	2 637 882	0.523%	2 463.19	6 103.77	- 3 640.58
Zimbabwe	14 648	0.003%	13.68	19.10	- 5.42
TOTAL	504 488 646	100.000%	471 079.00	522 950.00	- 51 871.00

* Least Developed Countries are exempted.

Note 1: Four States, Bosnia and Herzegovina, Estonia Gabon and North Macedonia did not perform scheduled service during 2021 and therefore had zero ATKs reported.

Note 2: In accordance with the months for which services were received, Iraq's share of actual 2021 costs was calculated based on 0 full months of service.

Note 3: In accordance with the months for which services were received, Uzbekistan's share of actual 2021 costs was calculated based on 2 full month of service.

APPENDIX E

SADIS COST ESTIMATES FOR 2023 TO 2026 FOR SADIS SERVICES PROVIDED BY THE UNITED KINGDOM METEOROLOGICAL OFFICE

TABLE 1: UKMO Cost and manpower resource projections until year 2026 (at 2022 prices)

INVENTORY REF:	Note	DESCRIPTION	Actual 2021	Revised Estimate 2022	Est 2023	Est 2024	Est 2025	Est 2026
UK MET OFFICE COSTS								
1. Equipment								
Principally procured for SADIS								
		comms link SADIS Gateway & Met Office	2,528	0	0	0	0	0
Not procured principally for SADIS								
	a	message switch	3,000	3,000	4,500	4,500	4,500	4,500
	b	AWS Server running costs for SADIS FTP	42,318	44,000	53,000	50,000	35,000	28,000
		Equipment sub total	47,846	47,000	57,500	54,500	39,500	32,500
2. Next Generation SADIS service provision								
	c	SADIS API	n/a	n/a	6,000	80,000	120,000	150,000
		API sub total	0	0	6,000	80,000	120,000	150,000
3. Annual Staff Requirements								
Operating Support								
	d	First Line Support	4,602	5,100	5,000	5,000	5,500	5,500
	e	Second Line Support	14,760	7,500	12,000	15,000	15,000	15,000
	f	Third and Fourth Line Support	3,294	3,400	15,000	20,000	20,000	20,000
Additional Support								
	g	Administrator	65,930	66,400	67,000	67,000	68,000	68,000
	g	International Aviation Management	8,112	8,200	8,500	8,500	9,000	9,000
	g	Contract Procurement and Management	1,642	1,660	1,700	1,800	1,800	1,900
	g	Invoice Administration	12,754	12,900	13,500	14,000	14,000	15,000
Travel Costs								
	h	METP-WG/MOG meetings & SCRAG	0	0	3,000	1,200	1,200	1,200
		Staff Requirement and travel sub total	111,094	105,160	125,700	132,500	134,500	135,600
Administrative costs								
	i	Cost of Capital	15,111	16,000	17,000	17,000	17,000	17,000
	j	Admin charges	180	140	400	400	400	400
Total UKMO Costs			174,231	168,300	206,600	284,400	311,400	335,500

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Appendix E

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2 TABLE 2: NATS and other SADIS Cost Projections until 2025 (at 2022 prices)								
			Actual 2021	Revised Estimate 2022	Est 2023	Est 2024	Est 2025	Est 2026
INVENTORY REF:	Note	DESCRIPTION						
NATS Gateway Costs								
Staff Costs								
	k	Operational Staff	225,000	235,000	256,525	273,006	285,681	293,522
	k	Engineering Staff	7,000	7,300	8,669	9,335	9,649	9,919
	k	Administration Staff	27,800	29,300	35,260	37,883	38,742	39,471
		Staff Costs sub total	259,800	271,600	300,454	320,224	334,072	342,912
	k	Maintenance	9,700	9,700	10,209	10,581	10,737	10,871
	l	T&RE	0	0	3,500	1,745	1,775	1,800
		Total NATS Gateway Costs	269,500	281,300	314,163	332,550	346,584	355,583
3	m	CAA Administration Costs	980	980	1,000	1,000	1,000	1,000
4	n	ICAO Administration Costs	26,368	30,000	32,500	33,000	33,500	34,000
		TOTAL SADIS COSTS	471,079	480,580	554,263	650,950	692,484	726,083

APPENDIX F

**STATUS OF PAYMENTS OF THE ASSESSMENTS FOR 2021
AS AT 1 NOVEMBER 2022**

(£ Sterling)

STATES	Total amount billed for 2021 (SCRAG/21 Report, Appendix H)	Amount Collected as at 01 November 2022	Administrative Charges Applied	Application of credit balance (or part of)	Unpaid amount (excess paid) as at 01 November 2022
Albania	0.00				0.00
Algeria	467.24	467.24			0.00
Armenia	0.00				0.00
Australia	11,983.92	11,983.92			0.00
Austria	5,074.85	5,074.85			0.00
Azerbaijan	-614.65				- 614.65
Bahrain	1,287.34	1,287.34			0.00
Belarus	290.05	290.05			0.00
Belgium	2,560.01	2,560.01			0.00
Bosnia and Herzegovina	0.00				0.00
Botswana	0.00				0.00
Bulgaria	26.60	26.60			0.00
Cabo Verde	188.81	188.81			0.00
Cameroon	0.00				0.00
China: - Beijing	106,432.24	106,432.24	15.00		0.00
- Hong Kong	17,058.17	17,058.17	27.00		0.00
- Macau	524.89	524.89			0.00
Congo	7.65	7.65			0.00
Côte d'Ivoire	414.17	414.17			0.00
Croatia	106.25	106.25			0.00
Cyprus	-43.63				- 43.63
Czechia	388.93	388.93			0.00
Denmark	1183.06	1183.06			0.00
Egypt	2,776.08	2,776.08			0.00
Equatorial Guinea	25.33	25.33			0.00
Estonia	-0.87				- 0.87
Eswatini	3.06				3.06
Finland	4,009.02	4,009.02			0.00
France	18,067.28	18,067.28			0.00
Gabon	0.00				0.00
Georgia	143.43	143.43			0.00
Germany	19,979.55	19,979.55			0.00
Ghana	27.13				27.13
Greece	921.17	921.17			0.00
Hungary	5,721.49	5,721.49	15.00		0.00
Iceland	379.20	379.20			0.00
India	15,525.01	15,525.01			0.00
Indonesia	6,274.13	6,274.13			0.00
Iraq	684.29				684.29
Ireland	13,395.29	13,395.29			0.00
Israel	2,085.35	2,085.35			0.00
Italy	3,043.51	3,043.51			0.00
Jordan	619.26	619.26			0.00
Kazakhstan	1,038.92	1,038.92			0.00
Kenya	2,384.76	2,384.76			0.00
Kuwait	3,513.66	3,513.66			0.00
Kyrgyzstan	210.65	210.65			0.00

**STATUS OF PAYMENT OF THE ASSESSMENT FOR 2021
AS AT 01 NOVEMBER 2022**

(£ Sterling)

STATES	Total amount billed for 2020 (SCRAG/20 Report, Appendix I)	Amount Collected as at 01 November 2022	Administrative Charges Applied	Application of credit balance (or part of)	Unpaid amount (excess paid) as at 01 November 2022
Latvia	644.56	644.56	8.65		0.00
Libya	100.12	100.12			0.00
Lithuania	- 280.36				- 280.36
Luxembourg	6 685.49	6 685.49			0.00
Maldives	82.36	82.36			0.00
Malta	323.13	323.13			0.00
Mauritius	539.75	539.75			0.00
Montenegro	0.00				0.00
Morocco	2 289.69	2 289.69			0.00
Namibia	- 163.51			- 74.82	- 88.69
Netherlands	11 727.72	11 727.72			0.00
Nigeria	329.11	329.11			0.00
North Macedonia	27.21	27.21			0.00
Norway	3 182.71	3 182.71			0.00
Oman	2 767.73	2 767.73			0.00
Pakistan	719.67	719.67	25.00		0.00
Poland	2 784.94	2 784.94			0.00
Portugal	4 044.28	4 044.28			0.00
Qatar	30 417.29	30 417.29			0.00
Republic of Moldova	183.74	183.74			0.00
Romania	551.73	551.73			0.00
Russian Federation	28 301.88	28 301.88	42.45		0.00
Saudi Arabia	8 186.45	8 186.45			0.00
Senegal	77.28	77.28			0.00
Serbia	234.07	234.07			0.00
Seychelles	- 103.27				- 103.27
Slovakia	0.00				0.00
Slovenia	8.04			8.04	0.00
South Africa	3 087.83	3 087.83			0.00
Spain	12 151.15	12 151.15			0.00
Sweden	1 219.93	1 219.93			0.00
Switzerland	6 416.42	6 416.42	15.00		0.00
Tajikistan	221.27	221.27			0.00
Thailand	13 509.80	13 509.80			0.00
Tunisia	362.52	362.52			0.00
Turkey	18 783.34	18 783.34	25.00		0.00
Ukraine	1 415.38	1 415.38			0.00
United Arab Emirates	46 262.22	46 262.22			0.00
United Kingdom	26 778.73	26 778.73			0.00
Viet Nam	6,357.75	6,357.75			0.00
Zimbabwe	0.00				0.00
TOTAL	488 390.75	488 874.52	173.10	- 66.78	- 416.99

**STATUS OF PAYMENT OF BALANCES FOR YEARS PRIOR TO 2021
AS AT 01 NOVEMBER 2022**

(£ Sterling)

STATES	Balance due for years prior to 2021	Amount Collected as at 01 November 2022	Administrative Charges Applied	Application of credit balance (or part of)	Unpaid amount (excess paid) as at 01 November 2022
Democratic People's Republic of Korea	140.33				140.33
Eswatini*	9.88				9.88
Ghana	6.44				6.44
Iran (Islamic Republic of)	14 548.16				14 548.16
Iraq	278.26				278.26
Libya	15.31			15.31	0.00
Namibia	74.82			74.82	0.00
Slovakia*	0.19				0.19
Syrian Arab Republic	2 266.26				2 266.26
Turkmenistan	1 228.35				1 228.35
TOTAL	18 568.00	0.00	0.00	90.13	18 477.87

* As per SCRAG Conclusion 19/6, invoices under GBP 30 are not invoiced.

APPENDIX G
ESTIMATED COST SHARES AND ASSESSMENTS
FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2023 *

STATES	2021 Available Tonne-Kilometres in Scheduled Services (000)	Percentage Cost Share	Share of 2023 Estimated Costs (£ Sterling)	Share of Under-recovery for 2021 (£ Sterling)	Amount to be Assessed for 2023 (£ Sterling)
Albania	20 196	0.004%	23.91	- 0.18	23.73
Algeria	242 251	0.052%	286.81	- 2.16	284.65
Armenia	26 657	0.006%	31.56	- 0.24	31.32
Australia	6 808 273	1.454%	8 060.63	- 60.62	8 000.01
Austria	3 563 241	0.761%	4 218.68	- 31.72	4 186.96
Azerbaijan	3 547 981	0.758%	4 200.62	- 31.59	4 169.03
Bahrain	2 009 829	0.429%	2 379.53	- 17.89	2 361.64
Belgium	4 507 005	0.963%	5 336.05	- 40.13	5 295.92
Bosnia and Herzegovina	0	0.000%	0.00	0.00	0.00
Botswana	12 681	0.003%	15.01	- 0.11	14.90
Bulgaria	6 136	0.001%	7.26	- 0.05	7.21
Cabo Verde	2 312	0.000%	2.74	- 0.02	2.72
Cameroon	13 324	0.003%	15.77	- 0.12	15.65
China: - Beijing	119 168 355	25.455%	141 088.86	-1 060.97	140 027.89
- Hong Kong	12 933 142	2.763%	15 312.14	- 115.15	15 196.99
- Macao	227 111	0.049%	268.89	- 2.02	266.87
Congo	11 660	0.002%	13.80	- 0.10	13.70
Côte d'Ivoire	166 481	0.036%	197.10	- 1.48	195.62
Croatia	111 572	0.024%	132.10	- 0.99	131.11
Cyprus	35 955	0.008%	42.57	- 0.32	42.25
Czechia	353 970	0.076%	419.08	- 3.15	415.93
Denmark	880 056	0.188%	1 041.94	- 7.84	1 034.10
Egypt	3 302 817	0.706%	3 910.36	- 29.41	3 880.95
Equatorial Guinea	2 449	0.001%	2.90	- 0.02	2.88
Estonia	0	0.000%	0.00	0.00	0.00
Eswatini	1 411	0.000%	1.67	- 0.01	1.66
Finland	2 531 271	0.541%	2 996.89	- 22.54	2 974.35
France	21 619 713	4.618%	25 596.57	- 192.48	25 404.09
Gabon	0	0.000%	0.00	0.00	0.00
Georgia	43 345	0.009%	51.32	- 0.39	50.93
Germany	27 664 315	5.909%	32 753.05	- 246.30	32 506.75
Ghana	27 275	0.006%	32.29	- 0.24	32.05
Greece	1 296 142	0.277%	1 534.56	- 11.54	1 523.02
Hungary	4 171 536	0.891%	4 938.87	- 37.14	4 901.73
Iceland	918 592	0.196%	1 087.56	- 8.18	1 079.38
India	14 147 468	3.022%	16 749.83	- 125.96	16 623.87
Indonesia	7 229 195	1.544%	8 558.97	- 64.36	8 494.61
Ireland	11 049 017	2.360%	13 081.44	- 98.37	12 983.07
Israel	1 924 685	0.411%	2 278.72	- 17.14	2 261.58
Italy	2 137 057	0.456%	2 530.16	- 19.03	2 511.13
Jordan	908 954	0.194%	1 076.15	- 8.09	1 068.06
Kazakhstan	1 665 996	0.356%	1 972.45	- 14.83	1 957.62
Kenya	1 360 435	0.291%	1 610.68	- 12.11	1 598.57
Kuwait	1 233 859	0.264%	1 460.82	- 10.99	1 449.83
Kyrgyzstan	35 816	0.008%	42.40	- 0.32	42.08
Latvia	495 086	0.106%	586.15	- 4.41	581.74

**ESTIMATED COST SHARES AND ASSESSMENTS
FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2023 ***

STATES	2021 Available Tonne-Kilometres in Scheduled Services (000)	Percentage Cost Share	Share of 2023 Estimated Costs (£ Sterling)	Share of Under-recovery for 2021 (£ Sterling)	Amount to be Assessed for 2023 (£ Sterling)
Libya	212 175	0.045%	251.20	- 1.89	249.31
Lithuania	262	0.000%	0.31	0.00	0.31
Luxembourg	12 006 003	2.565%	14 214.46	- 106.89	14 107.57
Maldives	19 770	0.004%	23.41	- 0.18	23.23
Malta	145 279	0.031%	172.00	- 1.29	170.71
Mauritius	317 239	0.068%	375.59	- 2.82	372.77
Montenegro	199	0.000%	0.24	0.00	0.24
Morocco	2 041 489	0.436%	2 417.01	- 18.18	2 398.83
Namibia	156	0.000%	0.18	0.00	0.18
Netherlands	16 000 311	3.418%	18 943.50	- 142.45	18 801.05
Nigeria	370 187	0.079%	438.28	- 3.30	434.98
North Macedonia	0	0.000%	0.00	0.00	0.00
Norway	1 990 631	0.425%	2 356.80	- 17.72	2 339.08
Oman	964 506	0.206%	1 141.92	- 8.59	1 133.33
Pakistan	1 476 103	0.315%	1 747.63	- 13.14	1 734.49
Poland	1 559 716	0.333%	1 846.62	- 13.89	1 832.73
Portugal	3 726 773	0.796%	4 412.30	- 33.18	4 379.12
Qatar	40 732 712	8.701%	48 225.32	- 362.65	47 862.67
Republic of Moldova	139 534	0.030%	165.20	- 1.24	163.96
Romania	378 406	0.081%	448.01	- 3.37	444.64
Saudi Arabia	8 590 292	1.835%	10 170.44	- 76.48	10 093.96
Senegal	87 814	0.019%	103.97	- 0.78	103.19
Serbia	300 399	0.064%	355.66	- 2.67	352.99
Seychelles	33 327	0.007%	39.46	- 0.30	39.16
Slovakia	1 089	0.000%	1.29	- 0.01	1.28
Slovenia	2 246	0.000%	2.66	- 0.02	2.64
South Africa	1 316 800	0.281%	1 559.02	- 11.72	1 547.30
Spain	10 540 346	2.251%	12 479.20	- 93.84	12 385.36
Sweden	843 573	0.180%	998.74	- 7.51	991.23
Switzerland	5 676 513	1.213%	6 720.68	- 50.54	6 670.14
Tajikistan	67 870	0.014%	80.35	- 0.60	79.75
Thailand	2 911 646	0.622%	3 447.23	- 25.92	3 421.31
Tunisia	417 396	0.089%	494.17	- 3.72	490.45
Turkey	31 933 701	6.821%	37 807.77	- 284.31	37 523.46
Ukraine	0	0.000%	0.00	0.00	0.00
United Arab Emirates	42 549 066	9.089%	50 375.78	- 378.82	49 996.96
United Kingdom	18 849 384	4.026%	22 316.68	- 167.82	22 148.86
Uzbekistan	878 935	0.188%	1 040.61	- 7.83	1 032.78
Viet Nam	2 637 882	0.563%	3 123.11	- 23.49	3 099.62
Zimbabwe	14 648	0.003%	17.34	- 0.13	17.21
TOTAL	468 149 000	100.000%	554 263.00	-4 168.00	550 095.00

* Excludes exempted Least Developed Countries, States for which the access to SADIS is not operational and States which do not receive SADIS service.

**AMOUNTS TO BE BILLED
FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2023
(£ Sterling)**

STATES	Adjustment for 2021 (Appendix D)	Assessment for 2023 (Appendix G)	Deduction of Unused Credit Balance from Previous Years	Total Amount to be Billed for 2023
Albania	- 0.14	23.73	- 23.59	0.00
Algeria	- 360.80	284.65		- 76.15
Armenia	0.71	31.32	- 18.27	13.76
Australia	- 8 318.83	8 000.01		- 318.82
Austria	- 548.41	4 186.96		3 638.55
Azerbaijan	2 887.50	4 169.03		7 056.53
Bahrain	251.60	2 361.64		2 613.24
Belarus	- 44.36	0.00		- 44.36
Belgium	744.28	5 295.92		6 040.20
Bosnia and Herzegovina	- 1.43	0.00		- 1.43
Botswana	1.50	14.90	- 11.24	5.16
Bulgaria	- 83.28	7.21		- 76.07
Cabo Verde	- 114.54	2.72		- 111.82
Cameroon	- 9.81	15.65	- 5.84	0.00
China: - Beijing	7 078.08	140 027.89		147 105.97
- Hong Kong	- 9 398.17	15 196.99		5 798.82
- Macao	- 304.42	266.87		- 37.55
Congo	- 20.16	13.70		- 6.46
Côte d'Ivoire	- 80.00	195.62		115.62
Croatia	- 24.72	131.11		106.39
Cyprus	8.64	42.25	- 50.89	0.00
Czechia	- 243.87	415.93	- 7.34	164.72
Denmark	- 551.45	1 034.10		482.65
Egypt	1.78	3 880.95		3 882.73
Equatorial Guinea	- 27.63	2.88		- 24.75
Estonia	- 0.04	0.00		- 0.04
Eswatini	- 0.96	1.66		0.70
Finland	- 1 629.73	2 974.35		1 344.62
France	- 521.35	25 404.09		24 882.74
Gabon	- 1.77	0.00		- 1.77
Georgia	- 71.32	50.93		- 20.39
Germany	751.83	32 506.75		33 258.58
Ghana	2.87	32.05		34.92
Greece	210.81	1 523.02		1 733.83
Hungary	- 334.58	4 901.73		4 567.15
Iceland	- 426.02	1 079.38	- 653.36	0.00
India	- 3 984.70	16 623.87		12 639.17
Indonesia	- 2 507.58	8 494.61		5 987.03
Iraq	- 457.98	0.00		- 457.98
Ireland	- 4 100.55	12 983.07		8 882.52
Israel	- 769.89	2 261.58		1 491.69
Italy	- 2 515.18	2 511.13		- 4.05
Jordan	- 146.83	1 068.06		921.23
Kazakhstan	392.85	1 957.62		2 350.47
Kenya	- 544.66	1 598.57		1 053.91
Kuwait	- 1 048.78	1 449.83	- 401.05	0.00

**AMOUNTS TO BE BILLED
FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2023
(£ Sterling)**

STATES	Adjustment for 2021 (Appendix D)	Assessment for 2023 (Appendix G)	Deduction of Unused Credit Balance from Previous Years	Total Amount to be Billed for 2023
Kyrgyzstan	- 171.86	42.08		- 129.78
Latvia	- 41.78	581.74		539.96
Libya	27.43	249.31		276.74
Lithuania	- 0.14	0.31	- 0.17	0.00
Luxembourg	4 695.22	14 107.57		18 802.79
Maldives	- 66.61	23.23		- 43.38
Malta	- 128.53	170.71		42.18
Mauritius	- 457.56	372.77		- 84.79
Montenegro	- 36.58	0.24		- 36.34
Morocco	- 587.67	2 398.83		1 811.16
Namibia	- 41.43	0.18		- 41.25
Netherlands	812.41	18 801.05		19 613.46
Nigeria	39.35	434.98		474.33
North Macedonia	- 29.89	0.00		- 29.89
Norway	- 2 364.50	2 339.08		- 25.42
Oman	- 1 703.64	1 133.33		- 570.31
Pakistan	- 484.53	1 734.49		1 249.96
Poland	- 637.71	1 832.73		1 195.02
Portugal	- 665.92	4 379.12		3 713.20
Qatar	9 049.43	47 862.67		56 912.10
Republic of Moldova	- 44.99	163.96		118.97
Romania	- 198.62	444.64		246.02
Russian Federation	6 780.84	0.00		6 780.84
Saudi Arabia	- 454.05	10 093.96		9 639.91
Senegal	44.72	103.19		147.91
Serbia	- 7.30	352.99		345.69
Seychelles	- 24.06	39.16	- 15.10	0.00
Slovakia	- 0.14	1.28		1.14
Slovenia	- 60.51	2.64		- 57.87
South Africa	- 2 483.09	1 547.30		- 935.79
Spain	- 1 643.99	12 385.36		10 741.37
Sweden	- 629.28	991.23		361.95
Switzerland	- 1 503.08	6 670.14		5 167.06
Tajikistan	- 152.27	79.75		- 72.52
Thailand	- 10 885.87	3 421.31		- 7 464.56
Tunisia	- 123.40	490.45		367.05
Turkey	8 467.60	37 523.46		45 991.06
Ukraine	- 600.18	0.00		- 600.18
United Arab Emirates	- 11 990.05	49 996.96		38 006.91
United Kingdom	- 13 198.07	22 148.86		8 950.79
Uzbekistan	136.79	1 032.78		1 169.57
Viet Nam	- 3 640.58	3 099.62		- 540.96
Zimbabwe	- 5.42	17.21	- 11.79	0.00
TOTAL	- 51 871.00	550 095.00	- 1 198.64	497 025.36

APPENDIX I

AMENDMENT TO ANNEX I, SADIS SERVICES, TO THE SADIS AGREEMENT

SADIS SERVICES

Editorial note. — Changes proposed by METP WG-MOG are highlighted in tracked-change mode as deletions or additions

ANNEX I

SADIS SERVICES

Note. — A glossary of abbreviations as used in this Annex is provided at the end of the Annex.

1. Internet based (FTP) service

A summary of products available on SADIS. Detailed descriptions are contained within the SADIS User Guide (Parts 1 and 2) of the service.

- a) distribution of WAFS upper-air forecasts in GRIB2 code form;
- b) distribution of WAFS SIGWX forecasts in BUFR code form;
- c) distribution of WAFS SIGWX forecasts in PNG chart form;
- d) distribution of OPMET information in alphanumeric format (METARs, TAFs, SIGMET, special AIREPs, volcanic ash advisories, tropical cyclone advisories and space weather advisories) from those regions whose OPMET information is needed to satisfy approved requirements in the regions served by SADIS;
- e) distribution of OPMET information in IWXXM format (METARs, TAFs, SIGMET, AIRMET, volcanic ash advisories, tropical cyclone advisories and space weather advisories) from those States who are distributing their data internationally via the Regional Opmet Centres; and
- f) distribution of meteorological information in graphical format (e.g. Volcanic Ash Graphics).

Note: Detailed descriptions are contained within the SADIS User Guide (Parts 1 and 2) of the service.

2. Collection service

- a) collection of OPMET information by the SADIS Gateway from States in accordance with approved requirements stated by PIRGs and actioned by Meteorological Operations Working Group (WG-MOG), the Working Group tasked by the Meteorological Panel (METP) to oversee the operational provision of SADIS;
- b) monitoring, validation and repair of data received at the SADIS Gateway to the required standards, for the provision of real-time scheduled reports and for off-line quality control analysis.

3. Back-up service

The recognised back-up to failure if the SADIS FTP service is via the USA administered, WAFS Information File Service (WIFS). SADIS FTP users are encouraged to arrange back-up accounts with the WIFS provider via <https://aviationweather.gov/wifs/>.

Note 1: - Usage restrictions apply. Further information is provided in the SADIS User Guide Part 1 (Administrative)

Note 2: - It is the responsibility of the SADIS FTP user to arrange and test back-up accounts with WIFS.

4. User support service

- a) 24-hour help line/faults desk;
- b) dissemination of administrative messages, including amendments to bulletin headers given in the SADIS User Guide (Parts 1 and 2).

5. File transfer protocol service

Provision of facilities dedicated to establishing and receiving an FTP connection, using password protected access, to the SADIS FTP server that enables the transfer of WAFS upper-air forecasts in GRIB code, WAFS SIGWX forecasts in BUFR code, WAFS SIGWX forecasts in PNG chart form and OPMET data over the Public Internet. The FTP service implements Digital Signatures and Digital Certificates to confirm data integrity and authenticity of the data.

6. Fair Use of SADIS Products

- a) The use of SADIS is continually monitored to ensure the volume of data being downloaded is not excessive and does not impede the operation of the SADIS FTP Servers;
- b) A user who is responsible for >10% of the total volume of data being downloaded from SADIS FTP Server in a single week will be considered as excessive usage;
- c) If users are deemed to be excessively downloading data then the SADIS Manager will contact the user with a request to the use to reduce the volume data being downloaded. The SADIS Manager may at their discretion, limit or terminate access to the SADIS FTP server without recourse to the user if the excessive use continues.

7. Security

- a) The SADIS FTP server will be continually monitored for lawful security purposes;
- b) Users are not permitted to share passwords and are responsible for keeping passwords secure;
- c) The SADIS Manager reserves the right to suspend or terminate a user's access to the SADIS FTP Server if the users use of the system or the user has failed to observe the obligations of 7 b) has resulted or is likely to result in an increased risk to security of the SADIS FTP Server;
- d) The SADIS Manager reserves the right to restrict access to the SADIS FTP Server in the event of a security threat and users acknowledge that access to the SADIS FTP Server may be restricted or unavailable until such time the security threat has been resolved.

Glossary of abbreviations

<i>AIREP</i>	Air report
<i>BUFR</i>	Binary Universal Form for the Representation of meteorological data (code)
<i>FTP</i>	File Transfer Protocol (Internet based)
<i>GRIB2</i>	Gridded binary edition 2 (code)
<i>IWXXM</i>	The ICAO Meteorological Information Exchange Model is a data format for reporting aviation weather information in XML/GML format
<i>METAR</i>	Routine aviation weather report in code form
<i>METP</i>	Meteorological Panel
<i>OPMET</i>	Operational meteorological (information or data)
<i>PIRG</i>	ICAO planning and implementation regional group
<i>PNG</i>	Portable Network Graphics (image format)
<i>SADIS</i>	Secure Aviation Data Information Service
<i>SADIS FTP</i>	Internet based provision of SADIS
<i>SADIS Gateway</i>	The United Kingdom message-handling system which receives data from the Aeronautical Fixed Service for transmission on SADIS
<i>SADISOPSG</i>	SADIS Operations Group. Tasked with the oversight of SADIS until its dissolution in 2015. Superseded by Meteorological Operations Working Group (WG-MOG) under the Meteorological Panel (METP). Reference retained for historical purposes.
<i>SIGMET</i>	Information of specified en-route weather phenomena which may affect the safety of aircraft operations
<i>SIGWX</i>	Significant weather
<i>TAF</i>	Aerodrome forecast in code form
<i>WAFS</i>	World area forecast system
<i>WG-MOG</i>	Meteorological Operations Working Group (under METP)

APPENDIX J

AMENDMENT TO ANNEX II, SADIS INVENTORY, TO THE SADIS AGREEMENT

ANNEX II SADIS INVENTORY

(Annex II updated during the Fifteenth Meeting of the Meteorology Panel Working Group on Meteorological Operations Group Virtual Meeting, 15 April 2021)

The inventory items identified below cover the equipment and staffing required to provide, operate and maintain the Secure Aviation Data Information Service (SADIS). The inventory includes: communications circuits, communications back-up system, procured services, and staff. It should be noted that some equipment items form part of a wider infrastructure. Costs of some individual items cannot be separated from the required infrastructure that includes a significant part of the development of the software and technical configuration. The inventory is in accordance with the SADIS User Guide.

1. EQUIPMENT

A. Key components of SADIS FTP infrastructure and communications circuits

SADIS infrastructure consists of the following:

i) **Solely procured for SADIS (major components)**

NIL

Note: In November 2019, SADIS FTP was migrated to use Amazon Web Services infrastructure (see Section 2A) which is a procured service.

ii) **Not procured principally for SADIS**

- a) Met Office Message switch (MetSwitch): Total investment £328K¹ of which 1.23 per cent is attributable to the SADIS FTP service usage: switching data to operational FTP service;
- b) NATS SADIS gateway function software (developed specifically for the gateway as part of the NATS CoreMet system);
- c) Met Office operational monitoring software;

Note. — This enables the operational monitoring of the SADIS FTP service and ensures problems can be identified and resolved in a timely manner.

- d) Met Office Service Desk equipment;

Note. — Equates to 3.5 per cent of the total share of Met Office IT Operations equipment.

¹ budgeted cost for providing MetSwitch service during the fiscal year 2018/2019.

B. SADIS data back-up system

The recognised back-up for SADIS FTP in the event of a failure is via the USA administered, WAFS Information File Service (WIFS). SADIS FTP users are encouraged to arrange back-up accounts with the WIFS provider via <https://aviationweather.gov/wifs/>.

Note 1: - Usage restrictions apply. Further information is provided in the SADIS User Guide Part 1 (Administrative)

Note 2: - It is the responsibility of the SADIS FTP user to arrange and test back-up accounts with WIFS.

2. PROCURED SERVICES**A. Amazon Web Services (AWS) elements used by the Met Office in the operation of SADIS FTP:**

AWS Service	Specification	Quantity	What the service is used for:
EC2	t3.medium 2* vCPU (<i>Intel Xeon Platinum 8000 series</i>) 4 GiB Memory Network Bandwidth: ≤5Gbps; EBS Bandwidth ≤1.50 Gbps)	3	2* FTP Server and 1 Apps Server
S3	N/A	12	Data Storage : Ingestion; FTP Content; IWXXM; AuthN; Logs & Alerts.
DynamoDB	1x Table Primary partition key: report_id Read/write capacity mode: On-Demand	1	Stores incoming IWXXM reports from AV OPMET Data Services
Route53	N/A	1	DNS
Lambda	N/A	N/A	Various Serverless Functions including housekeeping, Log formatting, Alerting Management, packaging IWXXM data, etc.
Cloudwatch	N/A	N/A	Log Aggregation
NAT Gateway	N/A	1	Access
VPC	N/A	1	
Kinesis Data Stream	N/A	1	Log Entry Routing
Kinesis Firehose	N/A	2	
DynamoDB	N/A		Alert Management
Athena	N/A		

- B. NATS Gateway function:
- i) Communication circuits between Met Office and NATS infrastructure site; and
 - ii) System maintenance.

3. ANNUAL STAFF REQUIREMENTS

A. Met Office

i) First Line Support

Help Desk

Skill

- 1. Service desk (first point of contact) enquiries Incident Management and customer enquiries

Note. — The Service Desk acts as a first point of contact for all inquiries, including those concerning the OPMET Gateway function. Complex inquiries will be passed to a relevant expert. Experts are available either on a 24-hour rota basis, or as a daytime support with limited on-call capability

ii) Second Line Support

24-hour IT Operations support

Skill

- 1. Shift Leader (ITCS) Technical Supervisor, incident handling
- 2. Networks Incident Manager (NIM) Service Continuity, system monitoring

iii) Third and Fourth Line Support

Normal working hours support and “best endeavors”

Skill

- 1. Message Switching Manager Incident handling, server adjustments
- 2. Message Switching Staff Incident handling and account changes
- 3. AWS Technical Support AWS expertise, support and guidance

iv) Additional support

Day support

Resource

- 1. Administrator 144 staff-days of senior stakeholder relationship manager (SADIS manager)
- 2. International aviation management 14 staff-days of aviation business head
- 3. Contract procurement and management 4 staff-days of senior procurement manager
- 4. Invoice Administration 20 staff-days of finance assistant and 15 staff-days of senior finance manager

B. NATS infrastructure site – Data Services (OPMET Gateway function)

Note 1. —Data Services provide the OPMET Gateway function, which is provided from a single operational site, but with a full capability at an alternative site. Staff are available either on a 24-hour basis, or as a daytime support with on-call capability.

Note 2. — The resource demand to provide the SADIS Gateway service is the standard required staff days needed to provide the SADIS service. It comprises 6 watches providing the H24 element of the service and day support administrative staff. The cost recovery NATS submits to the SCRAG will represent actual staff-days required to provide the service

<i>Role and Responsibilities</i>	<i>Resource</i>
1. Operational Staff - Operational Staff relates to the H24 function in ROC LONDON. Monitor, validate, record & report on issues raised through the SADIS Gateway operation.	521 staff-days per annum
2. Engineering Staff - Engineering Staff includes the duties carried out by the Engineering Day support team and an H24 engineers for the support of SADIS.	20 staff-days per annum
3. Administration Staff - The Administration Office carries out the documentation creation and amendments, adaptation changes, investigations and meeting attendance of the SADIS Gateway operation.	63 staff-days per annum

C. Bought-in services

Additional support and maintenance agreements with third parties are in place to provide additional third line AWS support of the SADIS FTP services.

— END —