



SCRAG/19 - REPORT

INTERNATIONAL CIVIL AVIATION ORGANIZATION

**REPORT OF
THE NINETEENTH MEETING OF THE
SADIS COST RECOVERY ADMINISTRATIVE GROUP
(SCRAG/19)**

(London, 30 October 2018)

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INTRODUCTION

Place and Duration

1. The Nineteenth Meeting of the SADIS Cost Recovery Administrative Group (SCRAG) was held at the Civil Aviation Authority CAA House in London on Tuesday, 30 October 2018.

Attendance

2. The Meeting was attended by one Member from the European region, Mr. Patrick Simon, the Provider State participants and an ICAO representative. 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. Mr. Patrick Simon (France), was Chairperson of the Meeting. Ms. Joanna Zorbas, Joint Financing Officer, ICAO Headquarters in Montréal, was Secretary of the Meeting.

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 2017

Agenda Item 4: Review of estimated SADIS costs and cost shares for the period 1 January to 31 December 2019 and estimated costs for the next two to five years

Agenda Item 5: Review of the status of SADIS payments for the current year (2018) invoices

Agenda Item 6: Amendments to Annexes of the SADIS Agreement

Agenda Item 7: Future work and arrangements for the SCRAG/20 Meeting

Agenda Item 8: Other business

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

1.1 Mr. Patrick Simon (France), the first named Party from the European region and the only SCRAG member in attendance, participated in the capacity of Chairperson for the SCRAG/19 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 needed for the SCRAG/19 meeting. The Group acknowledged the need for the nomination of another Party from the European Air Navigation Planning Group (EANPG) as the percentage of total assessments for the region has consistently approximated and sometimes surpassed the 50 per cent level. Based on the cost shares related to the payment for the SADIS services, Germany has the greatest cost in the European region after the United Kingdom. With the withdrawal of Mr. Leander Jamin (Germany) subsequent to the SCRAG/18 meeting, the Group puts forth the suggested nomination of Mr. Stolpmann (Germany), for the consideration of the EUR Regional planning group.

SCRAG Conclusion 19/1 —

The Group put forward the suggested nomination of Mr. Sebastian Stolpmann (Germany) as a member of the SCRAG, for consideration by the Regional Planning Group of the European Region.

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 60 States. Three of these States are not presently receiving the service and four of these States are Least Developed Countries (LDCs), which are exempted from payment of SADIS cost share. The Group was also informed that 58 other States receiving the SADIS service had not yet acceded to the SADIS Agreement. Of these States, 30 are LDCs, which are exempted from payment of SADIS cost share. States that have formally acceded to the SADIS Agreement and States that have not, are listed in Appendix D.

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 Sixth Meeting of the Meteorology Panel (METP) Working Group on Meteorological Operations Group (WG-MOG) (METP WG-MOG/6, Offenbach, Germany, 10 to 11 April 2018) provided by the Rapporteur of the METP WG-MOG.

2.2 In accordance with Action 6/2 of METP WG-MOG/6, 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 Third 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/4 Meeting (Exeter, United Kingdom, 4 to 7 April 2017).

2.3 The following Actions/Decisions relating to the SADIS Service were documented in the report of the METP WG-MOG/6:

METP WG-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 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; and,
- c) provide an updated SADIS/WIFS OPMET Data Catalogue in electronic form for monitoring purpose.

METP WG-MOG Action 6/7: — Catalogue of OPMET Information

That the SADIS provider State in association with the EUR Data Management Group (DMG) undertakes the provision of a SADIS/WIFS OPMET Data Catalogue. The task will include the following:

- a) highlight where OPMET information is not aligned with Doc 7910;
- b) investigate the procedure that ICAO Regions adopt for changing OPMET; distribution lists and the update schedule for inter-regional exchange
- c) make reference to location identifier, station name, State and Region

The provisional catalogue should be completed by September 2018 and published on the MOG Website.

Status: V1.0 of the Catalogue is complete and has been published on SADIS (in the /DOCUMENTS/ directory. Considerable investigative work has also taken place between the SADIS Gateway Provider and the WIFS Gateway provider to align the OPMET data sets.

METP WG-MOG Action 6/2: — Annual statement of operational efficacy of SADIS 2017/2018

That the Chair of the METP-WG/MOG be invited to inform the Chair of the SCRAG that the SADIS continued to meet the operational requirements during the period 2017/2018.

Status: Complete. The notification is included in Attachment 1.

METP WG-MOG Action 6/3: – 2018/2019 SADIS Efficacy Questionnaire

That,

- a) The ICAO hosted SADIS “State Level” Efficacy questionnaire be retired and replaced with the web-hosted SADIS “User level” Efficacy Survey as specified in Appendix B to the METP-WG/MOG6 report.
- b) SADIS users be invited to participate in the survey via State Letter, e-mail and SADIS administrative messages; and
- c) the survey to be carried out between 01 July 2018 and 31 December 2018.

Status: In Progress. The 2018/2019 survey is underway, however we are still waiting for ICAO to issue a State Letter.

METP WG-MOG Decision 6/4 — SADIS FTP Bandwidth

That the SADIS provider upgrades the SADIS bandwidth to 80Mbit/sec bursting 120Mbit/sec as soon as the Met Office infrastructure upgrade enables this change to take place.

Status: The bandwidth increase is expected to take place in November or December 2018

METP WG-MOG Action 6/5 — SADIS Agreement Annex I and II 2018-2019

That, the Chair of the METP-WG/MOG be invited to forward the updated SADIS inventory to the Chair of SCRAG.

Status: Complete. Updated SADIS inventory is presented as WP/12

METP WG-MOG Action agreed 6/6: — Trial provision of Low-level area forecasts

That the SADIS Provider State,

- a) Continue the trial provision of low-level area forecasts in graphical format on SADIS FTP until 10 July 2019.
- b) Provide a paper for the consideration by METP/4 regarding the international distribution of AIRMET/GAMET, and
- c) invite MIE to consider whether an appropriate schema for the provision of GAMET in IWXXM should be provided.

Status: The Low level area forecast trial extension is in progress. A paper has been presented to METP/4 regarding the international distribution of AIRMETs and GAMETs.

A paper was submitted to METP/WG-MIE/4 to consider a GAMET IWXXM schema, and the decision was taken that due to the variety and divergence globally in these products it would be very time consuming and costly to develop this. Instead MIE will carry out an investigation of the meteorological information required for low level flight (below FL100) and look at how best to represent this in IWXXM form .

METP WG-MOG Decision 6/8 — Sixth Edition of the SADIS User Guide (Part 1 and Part 2)

That, the proposed updates to the SADIS User Guide Part 1 and Part 2 be finalised and published on the ICAO website.

METP WG-MOG Decision 6/9 — Space Weather forecasts on SADIS

That Space Weather Advisories in TAC format be included on SADIS FTP once the operational service begins on 8 November 2018.

Status: Partially complete as we are still awaiting the designation of the Space Weather providers. An update to the SADIS user guide was published in May 2018.

METP WG-MOG Action 6/10 — Establishment of a SADIS Test server facility

That,

- 1) the SADIS Provider State set-up a SADIS Test server facility by early 2019 to enable SADIS users to test their systems and work with IWXXM data.
- 2) SADIS and WIFS Provider States provide a paper for consideration by METP/4 setting out the implementation strategy for SADIS and WIFS to operationally provide IWXXM OPMET data by November 2020.

Status: Test Server set up is about to commence. A paper was presented at METP/4 which set out the implementation strategy for IWXXM format OPMET data.

METP WG-MOG Action 6/11 — Update to the SADIS Gateway Operations Handbook

That, the SADIS Provider State,

- a) publish and implement Version 7 of the SADIS Gateway Operations Handbook making reference to the SADIS WIFS OPMET Data Catalogue and;
- b) continue to review the SADIS Gateway Operations Handbook on an annual basis and if required update and present the changes at the next METP-WG/MOG.

Status: Complete. Presented and agreed at METG28 in Paris, 18-21 September 2018.

METP WG-MOG Action 6/12 — Job Card 8 update

- a) That the METP-WG/MOG meeting endorse the proposed updates to Job Card 8 as shown in Appendix D to this report; and
- b) That the METP-WG/MOG recommends these changes to METP/4.

Status: Complete. A paper was presented to METP/4 with the proposed changes to Job Card METP.008.02

METP WG-MOG Action 6/13 – SADIS Workstation Evaluations

That;

- a) the SADIS provider develop a “SADIS Workstation User Evaluation Guide” and accompanying test data set which will be published in the “Documentation”

section of SADIS FTP, as well as on the Met Office and ICAO METP MOG SADIS web-pages; and,

- b) the SADIS Provider is permitted to charge to carry out SADIS workstation evaluations; and,
- c) the proposed update to the “Fourth Round SADIS FTP Workstation Software Evaluation Criteria” document, included as Appendix E to the METP-WG/MOG report, endorsed by the group, be published on the Met Office and ICAO METP MOG SADIS web-pages.

Status: In progress. The “Fourth Round SADIS Workstation Software Evaluation Criteria” document has been updated and published.

METP WG-MOG Decision 6/14 — SADIS Documentation ICAO Website

That the files located on the following three web-pages:

<https://www.icao.int/airnavigation/METP/Pages/Public-Documents.aspx>
<https://portal.icao.int/METP/MOG/Pages/MOG-Reference-Documents.aspx> and
<https://www.icao.int/airnavigation/METP/MOG/Pages/SADIS.aspx>

are reviewed to be consistent and either updated to the latest version of each file or deleted.

Status: Incomplete, despite detailed information on the required changes being provided to ICAO. Only the “public-documents” page has been updated to date.

AGENDA ITEM 3: REVIEW OF ACTUAL SADIS COSTS AND COST SHARES FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2017

Review of the 2017 Actual SADIS Costs

3.1 The Group reviewed the actual costs of £ 567 138 for providing the SADIS services in the year 2017. These actual costs are detailed in Appendix F, Column “Actual 2017” and the cost share per State is presented in Column 4 of Appendix E. 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 2017

Cost Item	Actual Costs (UK £)
UK Meteorological Office	225 864
UK NATS Gateway	300 721
UK CAA administrative costs	4 168
Sub-total UK	530 753
ICAO support service costs	36 385
TOTAL	567 138

3.2 As was noted in paragraph 3.3 of the SCRAG/18 Report, the Group reviewed a breakdown of the NATS gateway costs solely dedicated to the provision of SADIS services (outside National and Regional OPMET Center, London functions). The Group agreed that such a paper would be beneficial for future MOG meetings rather than SCRAG.

Review of the 2017 Actual SADIS Cost Shares

3.3 The Group noted that Mauritius started receiving services in 2017 and in accordance with the start date of their service receipt, was assessed for two full months of service in 2017.

3.4 The Group determined that the actual cost shares for the period 1 January to 31 December 2017 be borne by the States' party to the SADIS Agreement which are not exempted because they are on the list of the Least Developed Countries (LDCs) or because they denied their accession to the SADIS Agreement, on the basis of the number of available tonne-kilometres (ATKs) in scheduled services for 2017, 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 SADIS Cost Allocation and Recovery (SCAR) Arrangement are shown in Appendix E.

3.5 The Group noted the adjustment for 2017; an over-recovery of £ 61 273, is the difference between the 2017 actual costs and the 2017 estimated costs approved by the SCRAG/17 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 2017

	Cost Item	Actual Costs (UK £)	Reference
(1)	2017 Actual Cost	567 138	Table 1 (A)
(2)	2017 Estimated Cost	628 411	SCRAG/17 Report, Table 3
(3)	Over-recovery for 2017 (to be subtracted from the amount billed in 2019)	-61 273	(1) - (2) (see Appendix E, column 6 and Appendix I, column 2)

The Group formulated the following Conclusion:

SCRAG Conclusion 19/2 —

The actual cost shares for 2017, as shown in Appendix E to the SCRAG/19 Report for the States participating in the SCAR Arrangement are approved by the SCRAG/19 meeting, with consequential adjustments to be made by the United Kingdom in its billing of these States for 2019, in accordance with Article XI, paragraph 3, of the SADIS Agreement.

3.6 The Group discussed possible shortcomings in the current means of calculating assessments with regards to pro-rating costs through the use of ATKs. The Group invited ICAO to provide an information paper that explores alternate means of equitably allocating costs between States. This information paper should be prepared and circulated prior to the next SCRAG meeting and be made available to other groups for reference.

3.7 The Group received information from the Observer from the United Kingdom on the status of payment of the cost shares of 2017 as at 12 October 2018. It was noted that a total amount of £ 551 802.22 was collected for 2017 (see Appendix G, page G-2). A balance of £ 339.91, which represents the sum of six States with balances owed, remains outstanding. Outstanding 2017 credits total £ 518.13, resulting in the netted balance of -£ 178.22, as indicated in the final column of Appendix G, page G-2.

3.8 The Group noted the information presented by the United Kingdom regarding the depreciated assets as at 31 December 2017 (see Appendix C).

3.9 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.

3.10 Having noted the information in Table 1 (A) and paragraphs 3.4 to 3.9 above, the Group agreed that the under-recovery of SADIS cost shares for the year 2017 amounts to £ 1 640, as shown in Table 2. The over-recovery of 2017 is the amount subject to collection for 2017 (£ 552 960), less the amounts collected for 2017 (£ 551 320).

TABLE 2
OVER-RECOVERY FOR 2017

		UK £	References
(1)	Actual costs for 2017	567 138	Table 1 (A)
(2)	Over-recovery for 2015	-14 178	SCRAG/17 Report, Table 2
(3)	Subject to collection for 2017	552 960	(1) + (2)
(4)	Collected from States for 2017 (as at 12 October 2018)	-551 320	Appendix G – page G-2 (column 3 minus column 5)
(5)	Collected from States for years prior to 2017 (as at 12 October 2018)	0	Appendix G – page G-3 (column 3)
(6)	Under-recovery for 2017 (to be added to the assessments for 2019)	1 640	(3) + (4) + (5) (see Appendix H, column 5)

The Group formulated the following Conclusion:

SCRAG Conclusion 19/3 —

An under-recovery, amounting to £ 1 640 of the SADIS cost shares for the year 2017, will be taken into account in the calculation of the SADIS cost shares for the year 2017, 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 2019 AND ESTIMATED COSTS FOR THE NEXT TWO TO FIVE YEARS

Review of the 2019 Estimated SADIS Costs

4.1 The Group reviewed the cost estimates for providing the SADIS services in the year 2018.

4.2 The cost estimates for 2019 are detailed in the column “Est 2019”, in Appendix F, and total £ 612 431. 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 2019**

Cost Item	Estimated Costs (UK £)
UK Meteorological Office	262 150
UK NATS Gateway	306 483
UK CAA administrative costs	4 000
Sub-total UK	572 633
ICAO support services costs	39 798
TOTAL	612 431

4.3 The Group expressed concern with regards to ICAO fulfilling their METP WG-MOG responsibility, as detailed in the list of tasks presented during the SCRAG/18 meeting. The task list forms a portion of the basis of the estimated ICAO cost figure for 2019. This concern is supported by the METP WG-MOG Decision 6/14, as indicated on page 5, that some of the information contained on the ICAO website is inconsistent and outdated file versions are still maintained on the site. Also, as indicated in the METP WG-MOG Action 6/3 on page 3, the 2018/2019 SADIS Efficacy Questionnaire is delayed pending the issuance of a State letter from ICAO.

4.4 The Group considered the over-recovery in Table 2 in the calculation of the amount to be assessed under the SADIS Agreement for 2019. The calculation of the amount to be assessed is presented in Table 4.

TABLE 4

AMOUNT TO BE ASSESSED UNDER THE SADIS AGREEMENT FOR 2019

		UK £	References
(1)	Under-recovery for 2017	1 640	Table 2
(2)	Estimated costs for 2019	612 431	Table 3
(3)	Amount to be assessed for 2019	614 071	(1) + (2) <i>(see Appendix H, column 6)</i>

4.5 The Group determined that the cost shares for the period 1 January to 31 December 2019, be borne by the States' party to the SADIS Agreement which are not exempted because they are on the list of the Least Developed Countries, on the basis of the number of available tonne-kilometres (ATKs) in scheduled services for 2017, in accordance with Article XI, paragraph 3, of the SADIS Agreement.

4.6 The Group noted that one State, Equatorial Guinea, is no longer included in the list of Least Developed Countries and is therefore included in the calculation of the assessment of cost shares for 2019.

4.7 The cost share in percentage terms and the share in £ sterling, including the share of under-recovery for 2017, to be borne by each State, are shown in Appendix H. Appendix I shows the amounts to be billed to each State in 2019, corresponding to the adjustment for 2017 (Appendix E), plus the assessment for 2019 (Appendix H), less any deduction of unused credit balances or other adjustments from previous years.

TABLE 5

AMOUNT TO BE BILLED UNDER THE SADIS AGREEMENT FOR 2019

		UK £	References
(1)	Amount to be Assessed for 2019	614 071.00	Table 4
(2)	Adjustment of Actual SADIS Costs to Estimated Costs for 2017	-61 273.00	Table 1 (B)
(3)	Deduction of Unused Credit Balances from Previous Year or Other Adjustments	-1 586.80	Appendix I (column 4)
(4)	Amount to be Billed for 2019	551 211.20	(1)+(2)+(3) (see Appendix I, column 5)

The Group formulated the following Conclusion:

SCRAG Conclusion 19/4 —

The estimated cost shares for 2019 as shown in Appendix H to the SCRAG/19 Report for each State participating in the SCAR Arrangement are approved by the SCRAG/19 meeting for collection by the United Kingdom. The Secretariat will place the tables on the SCRAG Web page.

Cost Estimates for the Years 2020 to 2022

4.8 The Group considered the estimates provided by the United Kingdom (Appendix F) and summarized in Table 5 of providing the SADIS services for the years 2020 to 2022, as well as the estimates for the United Kingdom administrative costs and the costs of ICAO support services. It should be noted that future costs for the next generation of SADIS system have not yet been quantified and, as a result, are not included in the estimated cost figures in Table 6.

TABLE 6

**SUMMARY OF ESTIMATED SADIS COSTS
FOR THE YEARS 2020, 2021 AND 2022**

Cost Item	Estimated Costs 2020 (UK £)	Estimated Costs 2021 (UK £)	Estimated Costs 2022 (UK £)
UK Meteorological Office	236 850	236 750	238 650
UK NATS Gateway	272 795	277 668	284 575
UK CAA administrative costs	4 000	4 000	4 000
Sub-total UK	513 645	518 418	527 225
ICAO support services costs	40 000	41 000	42 000
TOTAL	553 645	559 418	569 225

AGENDA ITEM 5: REVIEW OF THE STATUS OF SADIS PAYMENTS FOR THE CURRENT YEAR (2018) INVOICES

5.1 The Group reviewed WP/13 on the status of payment for the current (2018) year, presented by the United Kingdom.

5.2 The Group formulated the following Conclusion:

SCRAG Conclusion 19/5 —

The Group agreed that the SADIS Provider be invited to withdraw access to the secure SADIS FTP for those States who, as at 1200 UTC on 23 January 2019, have cumulative outstanding payments over GBP 100 due for any invoice dated 2018 or earlier.

5.3 Discussions during the SCRAG/18 meeting proposed to limit State invoicing to balances in excess of £ 10. In response, for 2018 invoicing, notification letters were issued to four States with balances below £ 10. The notification letters stated the intent to only provide an invoice once the balance due surpasses £ 10. The Group was invited to review a working paper presented to the SCRAG suggesting options for low value invoices going forward.

5.4 The Group formulated the following Conclusion:

SCRAG Conclusion 19/6 — Low value SADIS invoices

That, SADIS invoices or total balances are only invoiced when above 30 GBP. Totals will be carried forward and included on the invoice in a subsequent year.

AGENDA ITEM 6: AMENDMENTS TO ANNEXES TO THE AGREEMENT ON THE SHARING OF COSTS OF THE SATELLITE DISTRIBUTION SYSTEM FOR INFORMATION RELATING TO AIR NAVIGATION

6.1 The Group reviewed the amendments to Annex I, SADIS Services, to the SADIS Agreement as proposed by the METP WG-MOG and agreed upon by the United Kingdom as the SADIS Provider State. These amendments were necessary to ensure that services would continue to meet the approved operational requirements. The additions and deletions to the existing text of Annex I appear in outline and strikeout formats in Appendix J.

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

SCRAG Conclusion 19/7 —

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 is amended as indicated in Appendix J to the SCRAG/19 Report.

6.3 The Group reviewed the amendments to Annex II, SADIS Inventory, to the SADIS Agreement as proposed by the METP WG-MOG and agreed upon by the United Kingdom as the SADIS Provider State. These amendments were necessary to ensure that the inventory would continue to meet the approved operational requirements. The additions and deletions to the existing text of Annex II appear in outline and strikeout formats in Appendix K.

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

SCRAG Conclusion 19/8 —

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 is amended as indicated in Appendix K to the SCRAG/19 Report.

AGENDA ITEM 7: FUTURE WORK AND ARRANGEMENTS FOR THE SCRAG/20 MEETING

7.1 The Group accepted Germany's kind offer to host the Twentieth SCRAG meeting. The Group agreed that the meeting will be held on 30 October 2019. In the event Germany cannot accommodate this date, the meeting will be held at the UK CAA Offices in Gatwick.

AGENDA ITEM 8: OTHER BUSINESS

8.1 The Group expressed its appreciation to the UK CAA Offices in London for their hospitality and excellent support received during the Meeting. The Group expressed thanks for the excellent support provided by the Secretary of the Group.

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APPENDIX A

LIST OF PARTICIPANTS

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APPENDIX B

LIST OF SCRAG/19 WORKING PAPERS

Working Paper No.	Agenda Item	Subject	Presented by
1	1 to 8	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/6 meeting	Rapporteur, METP WG-MOG
4	3	2017 ICAO actual SADIS administrative costs	Secretariat
5	3	2017 actual SADIS costs	United Kingdom
6	3 & 4	Status of payments for the year 2017	United Kingdom
7	3	Summary of actual costs and cost shares for the year 2017	Secretariat
8	3	Depreciated assets: SADIS costs	United Kingdom
9	4	2019 ICAO estimated SADIS administrative costs	Secretariat
10	4	Estimated SADIS costs: two to five years	United Kingdom
11	4	Summary of estimated costs and assessments for the year 2019	Secretariat
12	6	Amendment to Annex II, SADIS Inventory, to the SADIS Agreement	Secretariat
13	5	Status of payments for the current (2018) year	United Kingdom
14	5	Low value SADIS invoices	United Kingdom
15	6	Proposed amendments to Annex 1 of the SADIS Agreement	United Kingdom
16	3	SADIS Gateway Costs	United Kingdom
17	5	Credit balances	Secretariat

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APPENDIX C

INVENTORY OF ASSETS EMPLOYED BY THE UNITED KINGDOM TO PROVIDE SADIS SERVICES

(1) Inventory of Assets: 2017	(2) Original Value	(3) Depreciated charges in 2017	(4) Total accumulated depreciation	(5) Net depreciated value at end of 2017	(6) Net depreciated value at end of 2018
Original HUB Investment, Trial Systems and Capitalized Operation Asset	£713,769	£0	£713,769	£0	£0
Two-Way Hub enhancement, VSATS and development	£375,000	£0	£375,000	£0	£0
SADIS 2G Operational System	£87,428	£0	£87,428	£0	£0
SADIS 2G Hardware Refresh	£59,988	£0	£59,988	£0	£0
SADIS Gateway	£227,462	£0	£227,462	£0	£0
SADIS Gateway Mid-life upgrade	£187,330	£37,466	£112,398	£74,932	£37,466
SADIS Uplink replacement hardware	£28,220	£0	£28,220	£0	£0
Total UK	£1,679,197	£37,466	£1,604,268	£74,932	£37,466

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APPENDIX D

STATES WHICH FORMALLY ACCEDED TO THE SADIS AGREEMENT

STATES	LDCs Exempted
Albania	
Armenia	
Australia	
Austria	
Bahrain	
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	
Georgia	
Germany	
Greece	
Hungary	
Israel	
Italy	
Jordan	
Kazakhstan	
Kuwait	
Latvia	
Lithuania	
Madagascar	X
Mauritius	
Mongolia *	
Morocco	
Netherlands	
Norway	
Oman	
Pakistan	
Poland	
Portugal	
Republic of Moldova	
Romania	
Russian Federation	
Senegal	X
Slovakia	
Slovenia	
Spain	
Sweden	
Switzerland	
Thailand	
Tunisia	
Turkmenistan *	
Ukraine	
United Arab Emirates	
United Kingdom	
United Republic of Tanzania	X
Viet Nam	

* 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	LDCs Exempted
Algeria	
Angola	X
Azerbaijan	
Bangladesh	X
Benin	X
Bosnia and Herzegovina	
Bulgaria	
Burkina Faso	X
Burundi	X
Cambodia	X
Cape Verde	
Central African Republic	X
Chad	X
Comoros	X
Djibouti	X
Equatorial Guinea	
Eswatini	
Ethiopia	X
Gambia	X
Ghana	
Guinea	X
Guinea-Bissau	X
Iceland	
India	
Indonesia	
Iraq	
Ireland	
Kenya	
Lao People's Democratic Republic	X
Liberia	X
Libya*	
Malawi	X
Maldives	
Mali	X
Malta	
Mauritania	X
Montenegro	
Mozambique	X
Namibia	
Niger	X
Nigeria	
Qatar	
Republic of South Sudan	X
Rwanda	X
Sao Tome and Principe	X
Saudi Arabia	
Serbia	
Seychelles	
Somalia	X
South Africa	
Sudan	X
The former Yugoslav Republic of Macedonia	
Togo	X
Turkey	
Uganda	X
Yemen	X
Zambia	X
Zimbabwe	

* State does not presently receive the service.

APPENDIX E

ACTUAL COST SHARES FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2017* AND ADJUSTMENT FOR 2017

STATES	2017 Available Tonne-Kilometres in Scheduled Services (000)	Percentage Cost Share	Share of 2017 Actual Costs (£ Sterling)	Share of 2017 Estimated Costs (SCRAG/17) (£ Sterling)	Adjustment for 2017 (£ Sterling)
Albania	11 325	0.001%	8.17	23.76	- 15.59
Algeria	999 159	0.127%	721.23	996.13	- 274.90
Armenia (note 1)	12 483	0.002%	9.01	10.26	- 1.25
Australia	24 592 463	3.130%	17 751.74	21 662.66	- 3 910.92
Austria	4 041 122	0.514%	2 917.03	3 404.21	- 487.18
Azerbaijan	1 948 685	0.248%	1 406.63	645.94	760.69
Bahrain	2 774 112	0.353%	2 002.46	1 930.13	72.33
Belgium	6 150 076	0.783%	4 439.35	5 064.17	- 624.82
Bosnia and Herzegovina (note 1)	501	0.000%	0.36	0.41	- 0.05
Botswana	14 002	0.002%	10.11	31.77	- 21.66
Bulgaria	208 336	0.027%	150.38	164.26	- 13.88
Cameroon	46 082	0.006%	33.26	69.78	- 36.52
Cape Verde	75 441	0.010%	54.46	139.49	- 85.03
China: - Beijing	147 183 413	18.733%	106 242.38	109 155.96	- 2 913.58
- Hong Kong	36 597 457	4.658%	26 417.39	31 435.05	- 5 017.66
- Macau	732 995	0.093%	529.10	607.28	- 78.18
Congo	74 770	0.010%	53.97	98.49	- 44.52
Côte d'Ivoire	109 566	0.014%	79.09	73.51	5.58
Croatia	214 705	0.027%	154.98	175.12	- 20.14
Cyprus	123 947	0.016%	89.47	5.08	84.39
Czechia	1 065 373	0.136%	769.03	1 394.20	- 625.17
Denmark	2 221 759	0.283%	1 603.75	3 394.16	- 1 790.41
Egypt	4 832 004	0.615%	3 487.92	4 190.48	- 702.56
Estonia	1 239	0.000%	0.89	69.65	- 68.76
Eswatini (note 1)	2 286	0.000%	1.65	1.90	- 0.25
Finland	5 730 613	0.729%	4 136.57	4 248.34	- 111.77
France	33 215 902	4.228%	23 976.46	29 700.78	- 5 724.32
Gabon (note 1)	2 666	0.000%	1.92	4.68	- 2.76
Georgia	120 340	0.015%	86.87	79.81	7.06
Germany	42 668 504	5.431%	30 799.69	38 384.31	- 7 584.62
Ghana	26 728	0.003%	19.29	29.56	- 10.27
Greece	1 539 948	0.196%	1 111.59	1 347.54	- 235.95
Hungary	4 175 556	0.531%	3 014.07	2 873.87	140.20
Iceland	3 010 469	0.383%	2 173.07	1 372.89	800.18
India	26 907 406	3.425%	19 422.75	18 820.94	601.81
Indonesia	17 164 376	2.185%	12 389.88	12 033.95	355.93
Iraq	368 864	0.047%	266.26	100.97	165.29
Ireland	22 075 915	2.810%	15 935.20	13 766.48	2 168.72
Israel	4 315 543	0.549%	3 115.12	4 028.47	- 913.35
Italy	8 380 052	1.067%	6 049.03	5 241.63	807.40
Jordan	1 683 634	0.214%	1 215.31	1 611.56	- 396.25
Kazakhstan	1 833 653	0.233%	1 323.60	1 733.51	- 409.91
Kenya	1 881 974	0.240%	1 358.48	1 697.30	- 338.82
Kuwait	1 483 531	0.189%	1 070.87	1 689.24	- 618.37
Latvia	545 490	0.069%	393.75	372.29	21.46
Libya	320 138	0.041%	231.09	705.79	- 474.70
Lithuania	361 107	0.046%	260.66	367.97	- 107.31

**ACTUAL COST SHARES FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2017*
AND ADJUSTMENT FOR 2017**

STATES	2017 Available Tonne-Kilometres in Scheduled Services (000)	Percentage Cost Share	Share of 2017 Actual Costs (£ Sterling)	Share of 2017 Estimated Costs (SCRAG/17) (£ Sterling)	Adjustment for 2017 (£ Sterling)
Maldives	125 996	0.016%	90.95	1.38	89.57
Malta	304 758	0.039%	219.99	302.77	- 82.78
Mauritius (note 2)	226 733	0.029%	163.66		163.66
Montenegro	59 270	0.008%	42.78	60.29	- 17.51
Morocco	3 853 804	0.491%	2 781.82	2 855.40	- 73.58
Namibia	323 274	0.041%	233.35	263.95	- 30.60
Netherlands	23 428 695	2.982%	16 911.69	18 939.29	- 2 027.60
Nigeria	411 855	0.052%	297.29	425.56	- 128.27
Norway	7 418 261	0.944%	5 354.77	3 606.38	1 748.39
Oman	3 540 390	0.451%	2 555.58	2 363.46	192.12
Pakistan	4 150 900	0.528%	2 996.27	3 320.75	- 324.48
Poland	2 128 469	0.271%	1 536.41	1 193.49	342.92
Portugal	6 100 846	0.776%	4 403.81	4 887.25	- 483.44
Qatar	39 902 849	5.079%	28 803.34	27 644.11	1 159.23
Republic of Moldova	241 550	0.031%	174.36	175.92	- 1.56
Romania	795 184	0.101%	573.99	669.29	- 95.30
Russian Federation	36 811 567	4.685%	26 571.94	30 120.72	- 3 548.78
Saudi Arabia	12 576 370	1.601%	9 078.09	11 490.43	- 2 412.34
Senegal	2 317	0.000%	1.67	32.09	- 30.42
Serbia	483 484	0.062%	349.00	389.46	- 40.46
Seychelles	282 960	0.036%	204.25	212.22	- 7.97
Slovakia	1 799	0.000%	1.30	2.25	- 0.95
Slovenia	160 239	0.020%	115.67	159.82	- 44.15
South Africa	6 149 028	0.783%	4 438.59	5 657.47	- 1 218.88
Spain	15 687 123	1.997%	11 323.54	14 309.01	- 2 985.47
Sweden	2 293 645	0.292%	1 655.64	3 031.06	- 1 375.42
Switzerland	10 295 082	1.310%	7 431.37	8 304.03	- 872.66
Thailand	19 713 515	2.509%	14 229.94	15 172.37	- 942.43
The former Yugoslav Republic of Macedonia (note 1)	46 473	0.006%	33.55	38.19	- 4.64
Tunisia	932 420	0.119%	673.05	695.61	- 22.56
Turkey	34 045 290	4.333%	24 575.14	27 782.82	- 3 207.68
Ukraine	1 844 226	0.235%	1 331.23	1 056.33	274.90
United Arab Emirates	81 493 169	10.372%	58 824.76	71 241.28	- 12 416.52
United Kingdom	49 516 120	6.302%	35 742.54	40 904.82	- 5 162.28
Viet Nam	8 463 645	1.077%	6 109.37	6 000.64	108.73
Zimbabwe	30 417	0.004%	21.96	145.36	- 123.40
TOTAL	785 687 433	100.000%	567 138.00	628 411.00	- 61 273.00

* Least Developed Countries are exempted.

Note 1: 2017 ATKs were not received for Armenia, Bosnia and Herzegovina, Eswatini, Gabon and the former Yugoslav Republic of Macedonia.

The number of ATKs shown is the latest available adjusted based on the annual growth rate of ATKs for the specific region.

Note 2: In accordance with Mauritius' start of services in 2017, their share of actual 2017 costs was calculated based on two full months of service.

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APPENDIX F

SADIS COST ESTIMATES FOR 2019 TO 2022 FOR SADIS SERVICES PROVIDED BY THE UNITED KINGDOM METEOROLOGICAL OFFICE

TABLE 1: UKMO Cost and manpower resource projections until year 2022 (at 2018 prices)

INVENTORY REF:	Note	DESCRIPTION	Actual 2017	FOO 2018	Est 2019	Est 2020	Est 2021	Est 2022
UK MET OFFICE COSTS								
1. Equipment								
Principally procured for SADIS								
comms link SADIS Gateway & Met Office	a		3,340	3,340	3,500	3,500	3,500	3,500
Not procured principally for SADIS								
message switch (FTP)	b		5,364	5,500	5,600	5,800	6,000	6,000
internet bandwidth (FTP)	c		15,350	17,100	8,050	8,200	10,000	10,000
FTP equipment running costs			22,680	23,000	23,500	24,000	24,000	24,000
Service Desk Equipment Costs	d	Service Desk eqpt	10,307	10,500	10,750	11,000	11,000	11,000
	e	ad hoc maintenance	32	100	500	500	500	500
		Equipment sub total	57,073	59,540	51,900	53,000	55,000	55,000
2. Development Costs								
SADIS Test Server	f	Test server set-up costs	0	0	10,800	0	0	0
SADIS Test Server		Server running cost	0	0	3,200	3,200	3,200	3,200
IWXXM OPMET data		Data feed set-up costs	0	0	22,000	4,000	0	0
		Development Costs sub total	0	0	36,000	7,200	3,200	3,200
3. Annual Staff Requirements								
Help Desk								
	g	Help Desk 0.3%	5,916	6,000	6,000	6,500	6,500	7,000
		Technical Team Leader 3.5%	12,160	12,500	12,500	13,000	13,000	13,500
		Network Systems Supervisor 7%	24,320	25,000	25,000	25,500	25,500	26,000
Additional Support								
Systems Integration Team	h	Network Computer Engineer	5,145	5,400	5,400	5,600	5,600	5,800
Message Switching Manager		Message Switching Manager	5,145	5,400	5,400	5,600	5,600	5,800
Administrator		Executive Officer	63,615	64,000	65,000	65,000	66,000	66,000
International Aviation Management		Aviation Manager	8,156	8,200	8,400	8,400	8,600	8,600
Data Traffic		Communications Engineer	1,864	1,950	2,000	2,000	2,500	2,500
Message Switching Team		Technical Officer	5,592	5,600	5,800	5,800	6,000	6,000
Contract Procurement and Management		Senior Procurement Officer	1,491	1,500	1,600	1,600	1,600	1,600
Invoice Administration		Finance Officer & Business Acct	13,759	14,000	14,500	15,000	15,000	15,000
Travel Costs								
	i	METP WG-MOG meetings & SCRAG	393	1,200	1,000	1,000	1,000	1,000
		Staff Requirement and travel sub total	147,556	150,750	152,600	155,000	156,900	158,800
Administrative costs								
	j	Cost of Capital	20,611	20,600	21,000	21,000	21,000	21,000
	k	Admin charges	624	650	650	650	650	650
Total UKMO Costs			225,864	231,540	262,150	236,850	236,750	238,650

TABLE 2: NATS and other SADIS Cost Projections until 2022 (at 2018 prices)

			Actual 2017	FOO 2018	Est 2019	Est 2020	Est 2021	Est 2022
INVENTORY REF: Note DESCRIPTION								
2	NATS Gateway Costs							
	Staff Costs	l						
	Operational Staff		204,042	216,131	221,547	224,891	229,120	235,230
	Engineering Staff		3,316	7,116	7,052	7,175	7,311	7,458
	Administration Staff		39,494	23,473	26,946	27,331	27,839	28,489
	Staff Costs sub total		246,852	246,720	255,545	259,397	264,270	271,177
		m						
	Communications		133	345	345	345	345	345
	Maintenance		7,210	9,430	9,430	9,430	9,430	9,430
	T&RE		2,470	3,623	1,500	3,623	3,623	3,623
	Cost of Depreciated Capital	n						
	Capital Investments		37,466	37,466	37,466	N/A	N/A	N/A
	Interest at 5.88%		6,590	4,393	2,197	N/A	N/A	N/A
	Total NATS Gateway Costs		300,721	301,977	306,483	272,795	277,668	284,575
3	CAA Administration Costs	o	4,168	4,000	4,000	4,000	4,000	4,000
4	ICAO Administration Costs	p	36,385	39,000	39,798	40,000	41,000	42,000
	TOTAL SADIS COSTS		567,138	576,517	612,431	553,645	559,418	569,225

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APPENDIX G

STATUS OF PAYMENT OF THE ASSESSMENT FOR 2017 AS AT 12 OCTOBER 2018

(£ Sterling)

STATES	Total amount billed for 2017 (SCRAG/17 Report, Appendix I)	Amount Collected as at 12 October 2018	Administrative Charges Applied	Application of credit balance (or part of)	Unpaid amount (excess paid) as at 12 October 2018
Albania	- 150.93				- 150.93
Algeria	959.53	959.53	12.32		0.00
Armenia	5.53	5.53			0.00
Australia	13 416.33	13 416.33			0.00
Austria	2 712.47	2 712.47	7.00		0.00
Azerbaijan	682.82	682.82			0.00
Bahrain	1 392.92	1 392.92	12.00		0.00
Belgium	3 920.20	3 920.20			0.00
Bosnia and Herzegovina	- 2.83			- 2.83	0.00
Botswana	2.60				2.60
Bulgaria	113.05	113.05			0.00
Cameroon	49.76	49.76			0.00
Cape Verde	53.10	53.10			0.00
China: - Beijing	108 231.35	108 231.35	15.00		0.00
- Hong Kong	27 806.83	27 806.83	25.00		0.00
- Macau	622.75	622.75			0.00
Congo	114.75	114.75	3.35		0.00
Côte d'Ivoire	- 1.25			- 1.25	0.00
Croatia	123.54	123.54	7.00		0.00
Cyprus	- 364.23				- 364.23
Czechia	1 822.90	1 822.90			0.00
Democratic People's Republic of Korea	29.82				29.82
Denmark	4 858.42	4 858.42			0.00
Egypt	2 721.39	2 721.39	25.00		0.00
Estonia	30.59	30.59	1.00		0.00
Eswatini	1.27				1.27
Finland	3 311.41	3 311.41			0.00
France	24 653.86	24 653.86	4.00		0.00
Gabon	- 0.07			- 0.07	0.00
Georgia	111.04	111.04			0.00
Germany	29 883.61	29 883.61			0.00
Ghana	- 0.50				- 0.50
Greece	1 648.21	1 648.21	7.00		0.00
Hungary	3 500.41	3 500.41			0.00
Iceland	1 377.28	1 377.28			0.00
India	16 891.86	16 891.86	23.72		0.00
Indonesia	6 789.74	6 789.74			0.00
Iraq	58.64	58.64	21.95		0.00
Ireland	10 812.47	10 812.47			0.00
Israel	2 840.33	2 840.33			0.00
Italy	3 263.36	3 263.36			0.00
Jordan	1 024.53	1 024.53	53.35		0.00
Kazakhstan	1 467.11	1 467.11	31.11		0.00
Kenya	1 609.16	1 609.16			0.00
Kuwait	1 392.50	1 216.07			176.43
Latvia	185.26	185.26	7.00		0.00

G-2

STATUS OF PAYMENT OF THE ASSESSMENT FOR 2017
AS AT 12 OCTOBER 2018
(£ Sterling)

STATES	Total amount billed for 2017 (SCRAG/17 Report, Appendix I)	Amount Collected as at 12 October 2018	Administrative Charges Applied	Application of credit balance (or part of)	Unpaid amount (excess paid) as at 12 October 2018
Libya	81.61		47.70		81.61
Lithuania	279.34	279.34	7.00		0.00
Maldives	1.18	1.18			0.00
Malta	148.85	148.85	7.00		0.00
Montenegro	60.29	60.29			0.00
Morocco	3 278.56	3 278.56	30.69		0.00
Namibia	202.78	202.78			0.00
Netherlands	12 755.98	12 755.98	7.00		0.00
Nigeria	231.34	231.34			0.00
Norway	3 525.01	3 525.01	7.00		0.00
Oman	2 567.37	2 567.37			0.00
Pakistan	2 454.58	2 454.58	32.00		0.00
Poland	899.19	899.19			0.00
Portugal	3 795.75	3 795.75			0.00
Qatar	30 933.72	30 933.72	40.98		0.00
Republic of Moldova	233.15	233.15	25.70		0.00
Romania	586.65	586.65	7.00		0.00
Russian Federation	24 008.23	24 008.23	36.01		0.00
Saudi Arabia	9 012.07	9 012.07	15.00		0.00
Senegal	- 39.55			- 39.55	0.00
Serbia	553.01	553.01	12.00		0.00
Seychelles	- 3.60			- 3.60	0.00
Slovakia	- 2.04		5.00	- 2.04	0.00
Slovenia	169.72	169.72			0.00
South Africa	3 465.17	3 465.17	7.00		0.00
Spain	13 732.69	13 732.69	7.00		0.00
Sweden	4 081.20	4 081.20			0.00
Switzerland	6 094.71	6 094.71	15.00		0.00
Thailand	11 991.59	11 991.59			0.00
The former Yugoslav Republic of Macedonia	30.14	30.14			0.00
Tunisia	288.96	240.78			48.18
Turkey	31 173.64	31 173.64			0.00
Ukraine	805.92	805.92			0.00
United Arab Emirates	68 396.17	68 396.17	6.00		0.00
United Kingdom	30 311.84	30 311.84			0.00
Uzbekistan	- 432.86		9.00	- 432.86	0.00
Viet Nam	5 499.02	5 499.02			0.00
Zimbabwe	- 2.47				- 2.47
TOTAL	551 141.80	551 802.22	579.88	- 482.20	- 178.22

G-3

**STATUS OF PAYMENT OF BALANCES FOR YEARS PRIOR TO 2017
AS AT 12 OCTOBER 2018**

(£ Sterling)

STATES	Balance due for years prior to 2017	Amount Collected as at 12 October 2018	Administrative Charges Applied	Application of credit balance (or part of)	Unpaid amount (excess paid) as at 12 October 2018
Democratic People's Republic of Korea	199.93				199.93
Eswatini	4.04				4.04
Ghana	22.61				22.61
Iran (Islamic Republic of)	14 548.16				14 548.16
Libya	808.04				808.04
Syrian Arab Republic	2 266.26				2 266.26
Turkmenistan	1 228.35				1 228.35
TOTAL	19 077.39	0.00	0.00	0.00	19 077.39

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APPENDIX H

ESTIMATED COST SHARES AND ASSESSMENTS FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2019 *

STATES	2017 Available Tonne-Kilometres in Scheduled Services (000)	Percentage Cost Share	Share of 2019 Estimated Costs (£ Sterling)	Share of Under-recovery for 2017 (£ Sterling)	Amount to be Assessed for 2019 (£ Sterling)
Albania	11 325	0.001%	8.82	0.02	8.84
Algeria	999 159	0.127%	777.97	2.08	780.05
Armenia	12 483	0.002%	9.72	0.03	9.75
Australia	24 592 463	3.127%	19 148.42	51.28	19 199.70
Austria	4 041 122	0.514%	3 146.54	8.43	3 154.97
Azerbaijan	1 948 685	0.248%	1 517.30	4.06	1 521.36
Bahrain	2 774 112	0.353%	2 160.01	5.78	2 165.79
Belgium	6 150 076	0.782%	4 788.63	12.82	4 801.45
Bosnia and Herzegovina	501	0.000%	0.39	0.00	0.39
Botswana	14 002	0.002%	10.90	0.03	10.93
Bulgaria	208 336	0.026%	162.22	0.43	162.65
Cameroon	46 082	0.006%	35.88	0.10	35.98
Cape Verde	75 441	0.010%	58.74	0.16	58.90
China: - Beijing	147 183 413	18.713%	114 601.35	306.89	114 908.24
- Hong Kong	36 597 457	4.653%	28 495.86	76.31	28 572.17
- Macau	732 995	0.093%	570.73	1.53	572.26
Congo	74 770	0.010%	58.22	0.16	58.38
Côte d'Ivoire	109 566	0.014%	85.31	0.23	85.54
Croatia	214 705	0.027%	167.18	0.45	167.63
Cyprus	123 947	0.016%	96.51	0.26	96.77
Czechia	1 065 373	0.135%	829.53	2.22	831.75
Denmark	2 221 759	0.282%	1 729.93	4.63	1 734.56
Egypt	4 832 004	0.614%	3 762.34	10.07	3 772.41
Equatorial Guinea	48 984	0.006%	38.14	0.10	38.24
Estonia	1 239	0.000%	0.96	0.00	0.96
Eswatini	2 286	0.000%	1.78	0.00	1.78
Finland	5 730 613	0.729%	4 462.02	11.95	4 473.97
France	33 215 902	4.223%	25 862.88	69.26	25 932.14
Gabon	2 666	0.000%	2.08	0.01	2.09
Georgia	120 340	0.015%	93.70	0.25	93.95
Germany	42 668 504	5.425%	33 222.96	88.97	33 311.93
Ghana	26 728	0.003%	20.81	0.06	20.87
Greece	1 539 948	0.196%	1 199.05	3.21	1 202.26
Hungary	4 175 556	0.531%	3 251.21	8.71	3 259.92
Iceland	3 010 469	0.383%	2 344.04	6.28	2 350.32
India	26 907 406	3.421%	20 950.90	56.10	21 007.00
Indonesia	17 164 376	2.182%	13 364.69	35.79	13 400.48
Iraq	368 864	0.047%	287.21	0.77	287.98
Ireland	22 075 915	2.807%	17 188.96	46.03	17 234.99
Israel	4 315 543	0.549%	3 360.21	9.00	3 369.21
Italy	8 380 052	1.065%	6 524.96	17.47	6 542.43
Jordan	1 683 634	0.214%	1 310.93	3.51	1 314.44
Kazakhstan	1 833 653	0.233%	1 427.74	3.82	1 431.56
Kenya	1 881 974	0.239%	1 465.36	3.92	1 469.28
Kuwait	1 483 531	0.189%	1 155.12	3.09	1 158.21
Latvia	545 490	0.069%	424.73	1.14	425.87

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ESTIMATED COST SHARES AND ASSESSMENTS FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2019 *

STATES	2017 Available Tonne-Kilometres in Scheduled Services (000)	Percentage Cost Share	Share of 2019 Estimated Costs (£ Sterling)	Share of Under-recovery for 2017 (£ Sterling)	Amount to be Assessed for 2019 (£ Sterling)
Lithuania	361 107	0.046%	281.17	0.75	281.92
Maldives	125 996	0.016%	98.10	0.26	98.36
Malta	304 758	0.039%	237.29	0.64	237.93
Mauritius	1 360 400	0.173%	1 059.25	2.84	1 062.09
Montenegro	59 270	0.008%	46.15	0.12	46.27
Morocco	3 853 804	0.490%	3 000.69	8.04	3 008.73
Namibia	323 274	0.041%	251.71	0.67	252.38
Netherlands	23 428 695	2.979%	18 242.27	48.85	18 291.12
Nigeria	411 855	0.052%	320.68	0.86	321.54
Norway	7 418 261	0.943%	5 776.08	15.47	5 791.55
Oman	3 540 390	0.450%	2 756.65	7.38	2 764.03
Pakistan	4 150 900	0.528%	3 232.01	8.65	3 240.66
Poland	2 128 469	0.271%	1 657.29	4.44	1 661.73
Portugal	6 100 846	0.776%	4 750.30	12.72	4 763.02
Qatar	39 902 849	5.073%	31 069.54	83.20	31 152.74
Republic of Moldova	241 550	0.031%	188.08	0.50	188.58
Romania	795 184	0.101%	619.15	1.66	620.81
Russian Federation	36 811 567	4.680%	28 662.57	76.75	28 739.32
Saudi Arabia	12 576 370	1.599%	9 792.33	26.22	9 818.55
Senegal	2 317	0.000%	1.80	0.00	1.80
Serbia	483 484	0.061%	376.45	1.01	377.46
Seychelles	282 960	0.036%	220.32	0.59	220.91
Slovakia	1 799	0.000%	1.40	0.00	1.40
Slovenia	160 239	0.020%	124.77	0.33	125.10
South Africa	6 149 028	0.782%	4 787.81	12.82	4 800.63
Spain	15 687 123	1.994%	12 214.46	32.71	12 247.17
Sweden	2 293 645	0.292%	1 785.90	4.78	1 790.68
Switzerland	10 295 082	1.309%	8 016.05	21.47	8 037.52
Thailand	19 713 515	2.506%	15 349.52	41.10	15 390.62
The former Yugoslav Republic of Macedonia	46 473	0.006%	36.19	0.10	36.29
Tunisia	932 420	0.119%	726.01	1.94	727.95
Turkey	34 045 290	4.328%	26 508.67	70.99	26 579.66
Ukraine	1 844 226	0.234%	1 435.97	3.85	1 439.82
United Arab Emirates	81 493 169	10.361%	63 452.99	169.92	63 622.91
United Kingdom	49 516 120	6.295%	38 554.72	103.25	38 657.97
Viet Nam	8 463 645	1.076%	6 590.04	17.65	6 607.69
Zimbabwe	30 417	0.004%	23.68	0.06	23.74
TOTAL	786 549 946	100.000%	612 431.00	1 640.00	614 071.00

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

APPENDIX I

AMOUNTS TO BE BILLED FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2019 (£ Sterling)

STATES	Adjustment for 2017 (Appendix E)	Assessment for 2019 (Appendix H)	Deduction of Unused Credit Balance from Previous Years	Total Amount to be Billed for 2019
Albania	- 15.59	8.84		- 6.75
Algeria	- 274.90	780.05		505.15
Armenia	- 1.25	9.75	- 8.50	0.00
Australia	- 3 910.92	19 199.70		15 288.78
Austria	- 487.18	3 154.97		2 667.79
Azerbaijan	760.69	1 521.36		2 282.05
Bahrain	72.33	2 165.79		2 238.12
Belgium	- 624.82	4 801.45		4 176.63
Bosnia and Herzegovina	- 0.05	0.39	- 0.34	0.00
Botswana	- 21.66	10.93		- 10.73
Bulgaria	- 13.88	162.65		148.77
Cameroon	- 36.52	35.98		- 0.54
Cape Verde	- 85.03	58.90		- 26.13
China: - Beijing	- 2 913.58	114 908.24		111 994.66
- Hong Kong	- 5 017.66	28 572.17		23 554.51
- Macau	- 78.18	572.26		494.08
Congo	- 44.52	58.38		13.86
Côte d'Ivoire	5.58	85.54	- 8.83	82.29
Croatia	- 20.14	167.63		147.49
Cyprus	84.39	96.77	- 181.16	0.00
Czechia	- 625.17	831.75		206.58
Denmark	- 1 790.41	1 734.56		- 55.85
Egypt	- 702.56	3 772.41		3 069.85
Equatorial Guinea	0.00	38.24		38.24
Estonia	- 68.76	0.96		- 67.80
Eswatini	- 0.25	1.78		1.53
Finland	- 111.77	4 473.97		4 362.20
France	- 5 724.32	25 932.14		20 207.82
Gabon	- 2.76	2.09		- 0.67
Georgia	7.06	93.95	- 101.01	0.00
Germany	- 7 584.62	33 311.93		25 727.31
Ghana	- 10.27	20.87		10.60
Greece	- 235.95	1 202.26		966.31
Hungary	140.20	3 259.92		3 400.12
Iceland	800.18	2 350.32		3 150.50
India	601.81	21 007.00		21 608.81
Indonesia	355.93	13 400.48		13 756.41
Iraq	165.29	287.98		453.27
Ireland	2 168.72	17 234.99		19 403.71
Israel	- 913.35	3 369.21		2 455.86
Italy	807.40	6 542.43		7 349.83
Jordan	- 396.25	1 314.44	- 1.05	917.14
Kazakhstan	- 409.91	1 431.56		1 021.65
Kenya	- 338.82	1 469.28		1 130.46
Kuwait	- 618.37	1 158.21		539.84
Latvia	21.46	425.87		447.33
Libya	- 474.70			- 474.70
Lithuania	- 107.31	281.92		174.61

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**AMOUNTS TO BE BILLED
FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2019
(£ Sterling)**

STATES	0 Adjustment for 2017 (Appendix E)	Assessment for 2019 (Appendix H)	Deduction of Unused Credit Balance from Previous Years	Total Amount to be Billed for 2019
Maldives	89.57	98.36		187.93
Malta	- 82.78	237.93		155.15
Mauritius	163.66	1 062.09		1 225.75
Montenegro	- 17.51	46.27		28.76
Morocco	- 73.58	3 008.73	- 899.88	2 035.27
Namibia	- 30.60	252.38	- 146.96	74.82
Netherlands	- 2 027.60	18 291.12		16 263.52
Nigeria	- 128.27	321.54		193.27
Norway	1 748.39	5 791.55		7 539.94
Oman	192.12	2 764.03		2 956.15
Pakistan	- 324.48	3 240.66		2 916.18
Poland	342.92	1 661.73		2 004.65
Portugal	- 483.44	4 763.02		4 279.58
Qatar	1 159.23	31 152.74		32 311.97
Republic of Moldova	- 1.56	188.58		187.02
Romania	- 95.30	620.81		525.51
Russian Federation	- 3 548.78	28 739.32		25 190.54
Saudi Arabia	- 2 412.34	9 818.55		7 406.21
Senegal	- 30.42	1.80		- 28.62
Serbia	- 40.46	377.46		337.00
Seychelles	- 7.97	220.91		212.94
Slovakia	- 0.95	1.40		0.45
Slovenia	- 44.15	125.10		80.95
South Africa	- 1 218.88	4 800.63		3 581.75
Spain	- 2 985.47	12 247.17		9 261.70
Sweden	- 1 375.42	1 790.68		415.26
Switzerland	- 872.66	8 037.52		7 164.86
Thailand	- 942.43	15 390.62		14 448.19
The former Yugoslav Republic of Macedonia	- 4.64	36.29		31.65
Tunisia	- 22.56	727.95		705.39
Turkey	- 3 207.68	26 579.66		23 371.98
Ukraine	274.90	1 439.82	- 239.07	1 475.65
United Arab Emirates	- 12 416.52	63 622.91		51 206.39
United Kingdom	- 5 162.28	38 657.97		33 495.69
Viet Nam	108.73	6 607.69		6 716.42
Zimbabwe	- 123.40	23.74		- 99.66
TOTAL	- 61 273.00	614 071.00	- 1 586.80	551 211.20

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APPENDIX J

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 meteorological information in graphical format (e.g. Volcanic Ash Graphics).

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 Meteorology 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.

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>ISDN</i>	Integrated Services Digital Network
<i>METAR</i>	Routine aviation weather report in code form
<i>METP</i>	Meteorology Panel
<i>NWSTG</i>	National Weather Service Telecommunications Gateway (Washington, USA)
<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 Meteorology 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

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<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)

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APPENDIX K

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

SADIS INVENTORY

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

(2018-2019)

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

1. The SADIS FTP hub infrastructure connection to the Met Office message switch (MetSwitch) consists of a number of units installed at Exeter.

i) Solely procured for SADIS (major components)

SADIS gateway function software (developed specifically for the gateway as part of the NATS CoreMet system; see items under “Not procured principally for SADIS”).

Dell Poweredge R900 servers to provide the SADIS FTP service (see Section 1 C).

ii) Principally procured for SADIS

a) At the Met Office;

See Section 1 C for itemized components

iii) 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) Allocated bandwidth 42 Mbit/sec bursting to 60 Mbit/sec between server and Internet Service Provider (ISP) in support of the SADIS FTP service. Individual client connections have a maximum throughput of 4098 Kbit/sec.

c) NATS Message switch (CoreMet System);

Note. — Some elements of the CoreMet System are exclusively for the support of the SADIS gateway function.

d) SADIS FTP equipment running costs;

¹ budgeted cost for providing MetSwitch service during the fiscal year 2017/2018.

Note. — This comprises support and maintenance of the servers underpinning the SADIS FTP services, a share of the cost for the underlying storage capacity on which the SADIS FTP services are reliant, and operational monitoring of the SADIS FTP services by Tivoli ensuring problems can be identified and resolved in a timely manner.

- e) Met Office Service Desk equipment; and

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

B. SADIS data back-up system

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.

C. Hub equipment and services located at Exeter and Whitehill

<i>Item</i>	<i>Description</i>	<i>Quantity</i>
1.	SADIS FTP service	
1.1	Dell Poweredge R900 servers with 14 Gb RAM	2
1.2	Dell Poweredge R900 (4 core) servers with 32 Gb RAM *	2
1.3	Shared Storage Arrays (analogous to hard disk storage, but with dynamic upper limit)	2
1.4	VMWare Virtual Platform with Red Hat Linux 5.3 OS	2
1.5	Intel Xeon X7350, 2.93 GHz Processors	2
1.6	Licenses, misc. support and maintenance costs	1

Note 1. — Item 1.2 relates to Digital Signing servers.

Note 2. — Items listed under Section 1 are located at Exeter.

2. PROCURED SERVICES

- A. Annual maintenance of Met Office Exeter on-site equipment (SADIS FTP server); and

- C. Gateway function:

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

3. ANNUAL STAFF REQUIREMENTS

A. United Kingdom Met Office

i) Service Desk

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.

<i>Help Desk</i>	<i>Skill</i>
1. Service desk (first point of contact)	Incident Management
2. Additional Service Desk operator	Customer Enquiries

Note. — Total support for SADIS provided by the Met Office Service Desk team equates to 0.3 per cent of the total Weather Desk budget.

<i>24-hour IT Operations support</i>	<i>Skill</i>
1. Shift Leader (ITCS)	Technical Supervisor
2. Networks Incident Manager (NIM)	Service Continuity

Note. — Total support for SADIS provided by the Met Office IT Operations team equates to 3.5 per cent of the total IT Operations budget.

<i>Normal working hours support</i>	<i>Skill</i>
1. Change and problem manager (CPM)	Process Specialist

ii) Additional support

<i>Day support</i>	<i>Resource</i>
1. Systems integration team	14 staff-days of network computer engineer
2. Message Switching Manager	15 staff-days of MSS manager
3. Administrator	140 144 staff-days of executive officer
4. International aviation management	15 14 staff-days of manager
5. Data traffic	5 staff-days of communications engineer
6. Contract procurement and management	4 staff-days of senior procurement officer
7. Message switching Team	15 staff-days of technical officer
8. Invoice Administration	20 staff-days of invoicing officer and 15 staff-days of business accountant

B. NATS infrastructure site – Data services ~~CACC~~ (OPMET Gateway function)

Note 1. — Data services ~~The CACC~~ provides 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 of 604 days required to provide the SADIS Gateway service comprises 6 watches of 1 ATSA4 and 1 ATSA3 each (Operations), 1 ATCE4 (Engineering Watchkeeping) and 3 ATCE4 (Engineering Day Support) and 2 Gateway day support administrative staff.

24-hour support

Resource

- | | |
|-----------------------------------|--------------------------|
| 1. Air Traffic Services Assistant | 521 staff-days per annum |
|-----------------------------------|--------------------------|

Note. — Total support for SADIS provided by the 24 hour support for the OPMET Gateway function equates to 36 per cent of the Data services ~~CACC~~ Met Service H24 support and 18 per cent of the total Data services ~~CACC~~ Helpdesk budget.

- | | |
|--------------------------------|-------------------------|
| 2. H24 Maintenance Engineering | 10 staff-days per annum |
|--------------------------------|-------------------------|

Day Support

Resource

- | | |
|-------------------------------------|-------------------------|
| 3. Administration- | 54 staff-days per annum |
| 4. Meeting Attendance | 6 staff days per annum |
| 5. Staff Training and Documentation | 3 staff days per annum |
| 6. Day Support Engineering | 10 staff days per annum |

Note. — Total support for SADIS provided by the day support for the OPMET Gateway function equates to 5 per cent of the total day support budget.

C. Bought-in services

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

— END —