



SCRAG/17 - REPORT

INTERNATIONAL CIVIL AVIATION ORGANIZATION

**REPORT OF
THE SEVENTEENTH MEETING OF THE
SADIS COST RECOVERY ADMINISTRATIVE GROUP
(SCRAG/17)**

(Toulouse, 10 November 2016)

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TABLE OF CONTENTS

	<i>Page</i>
INTRODUCTION	1
Place and Duration	1
Attendance	1
Officers and Secretariat	1
Agenda	1
Agenda Item 1: Review of SCRAG's Terms of Reference, Composition and Working Arrangements	1
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
Agenda Item 3: Review of actual SADIS costs and cost shares for the period 1 January to 31 December 2015	3
Agenda Item 4: Review of estimated SADIS costs and cost shares for the period 1 January to 31 December 2017 and estimated costs for the next 2-5 years	6
Agenda Item 5: Review of the status of SADIS payments for the current year (2016) invoices	8
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	8
Agenda Item 7: Future work and arrangements for the SCRAG/18 Meeting	9
Agenda Item 8: Other business	9
APPENDICES	
Appendix A: List of participants	A-1
Appendix B: List of SCRAG/17 working papers	B-1
Appendix C: Inventory of assets employed by the United Kingdom to provide SADIS services	C-1
Appendix D: Status of accession to the SADIS Agreement as at 1 October 2016	D-1
Appendix E: Actual cost shares for the period 1 January to 31 December 2015 and adjustment for 2015	E-1
Appendix F: SADIS cost estimates for 2017 to 2020 for SADIS services provided by the United Kingdom Meteorological Office	F-1
Appendix G: Status of payment of the assessment for 2015 and of balances for years prior to 2015 as at 1 October 2016	G-1
Appendix H: Estimated cost shares and assessments for the period 1 January to 31 December 2017	H-1
Appendix I : Amounts to be billed for the period 1 January to 31 December 2017	I-1
Appendix J: Amendment to Annex II, SADIS Inventory, to the SADIS Agreement	J-1
Appendix K: Amendment to Annex I, SADIS Services, to the SADIS Agreement	K-1

INTRODUCTION

Place and Duration

1. The Seventeenth Meeting of the SADIS Cost Recovery Administrative Group (SCRAG) was held at the Office of Météo France in Toulouse on Thursday, 10 November 2016.

Attendance

2. The Meeting was attended by two Members from the European region (one as an observer), a representative from IATA and the Provider State participants. The list of attendees is in Appendix A and a list of working papers issued for the Meeting is in Appendix B.

Officers and Secretariat

3. Mr. Leander Jamin (Germany), was Chairperson of the Meeting. Ms. J. 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 2015

Agenda Item 4: Review of estimated SADIS costs and cost shares for the period 1 January to 31 December 2017 and estimated costs for the next 2-5 years

Agenda Item 5: Review of the status of SADIS payments for the current year (2016) invoices

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

Agenda Item 7: Future work and arrangements for the SCRAG/18 Meeting

Agenda Item 8: Other business

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

1.1 The Group noted that the Parties to the SADIS Agreement from the European region represent in the aggregate less than 50 per cent of the total assessments, which results in the nomination of only one SCRAG member from this region, in accordance with Article VII,

paragraph 2, of the SADIS Agreement. As a result, the additional Member from the European region, Mr. Patrick Simon (France), participated as an Observer.

1.2 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 re-assessments 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.”

1.3 The Group was informed that ICAO had received a formal notification of accession to the SADIS Agreement from 60 States. Four of these States had the service withdrawn 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 60 other States receiving the SADIS service had not yet acceded to the SADIS Agreement. Of these States, 32 are LDCs, which are exempted from payment of SADIS cost share.

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 Third Meeting of the Meteorology Panel (METP) Working Group on Meteorological Operations Group (WG-MOG) (METP WG-MOG/3, Gatwick, 13 to 16 June 2016) provided by the Rapporteur of the METP WG-MOG.

2.2 In accordance with Conclusion 3/1 of METP WG-MOG/3, 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/1 Meeting (Gatwick, 8 to 11 September 2015).

2.3 The following Actions/Decisions relating to the SADIS Service were documented in the report of the METP WG-MOG/3:

Action agreed 3/1 — Annual statement of operational efficacy of SADIS 2015/2016

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 2015/2016

Action agreed 3/2 — 2016/2017 SADIS operational efficacy questionnaire

That the questionnaire used in the 2016/2017 consultation with States/users on the operational efficacy of the SADIS be modified as proposed in Appendix B of SN/03.

Decision 3/3 — Secure SADIS FTP Bandwidth

That, the current Secure SADIS FTP bandwidth capacity (24Mbit/sec bursting 42Mbit/sec between SADIS Provider and its Internet Service Provider; with individual

client connections limited to 2048Kbit/sec.) is considered sufficient, and that no changes are required. Post cessation of SADIS-2G, SADIS FTP bandwidth capacity will be monitored, and should there be evidence that users are experiencing issues the group will correspond electronically in order to re-consider the issue and if necessary, approve an increase in capacity before the next MOG.

Action agreed 3/4 — SADIS Inventory 2016-2017

That, the Chair of the METP-WG/MOG be invited to forward the updated SADIS inventory (given in Appendix to SN/05) to the Chair of SCRAG.

Action agreed 3/5 — Sixth Edition of the SADIS User Guide (Part 1 and Part 2)

That, the update to the SADIS User Guide, (included in Appendix to-SN/01), be endorsed for formal publication by 11/7/16.

Note 1:- The updated guide will form two parts: 'Part 1 – General and Administrative' and 'Part 2 – Technical'.

Note 2:- As a substantial change to the preceding version, the updated guide will be considered to be a new 'Edition', namely the 'Sixth'.

Action agreed 3/6 — OPMET data for non-AOP aerodromes

That

- a) Graham and Patrick investigate if DMG is in a position to maintain a database of agreed non-AOP aerodromes MET information and report back to the WG-MOG; and,
- b) if the reply to a) above were positive, DMG in coordination with IATA and ICAO initiate follow-up action to keep updated the database of agreed non-AOP aerodromes MET information.

Action agreed 3/7 – Dissemination of MET information from AOP aerodromes

That the Chair of the METP-WG/MOG be invited to prepare a WP, for the consideration by the METP/2 Meeting, detailing the issues related to the dissemination of MET information from AOP aerodromes and non-AOP aerodromes (as currently defined).

Action agreed 3/8 – Cessation of SADIS-2G broadcasts

That the Chair of the METP-WG/MOG be invited to report to the METP the cessation of SADIS 2G broadcasts on 31st July 2016 including an update to Job Card METP.008.01.

AGENDA ITEM 3: REVIEW OF ACTUAL SADIS COSTS AND COST SHARES FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2015

Review of the 2015 Actual SADIS Costs

3.1 The Group reviewed the actual costs of providing the SADIS services in the year 2015. These actual costs are presented in Appendix E and total £728 214. 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 2015

Cost Item	Actual Costs (UK £)
UK Meteorological Office	372 200
UK NATS Gateway	315 490
UK administrative costs	3 813
Sub-total UK	691 503
ICAO support service costs	36 711
TOTAL	728 214

3.2 The Group expressed their concern with regards to the actual ICAO support service costs received by ICAO under the new Meteorology Panel structure. This concern was also noted in the SCRAG/16 report, paragraph 4.3, when the ICAO estimated 2016 costs were provided. The Group is requesting a review of the costs attributable annually to SADIS related METP WG-MOG support. In this regard, an inventory of tasks is requested to be undertaken in order to establish the applicable days of service to be charged as ICAO METP WG-MOG support service costs.

3.3 The Group requested that future SCRAG reports contain a breakdown of the NATS Gateway Costs solely dedicated to the provision of SADIS services (outside Regional OPMET Center, London functions).

Review of the 2015 Actual SADIS Cost Shares

3.4 The Group noted that one State, Indonesia, which was assessed for the year 2015 by the SCRAG/15 Meeting, had its services withdrawn on 28 January 2015 and then reinstated on 28 February 2015. Consequently, its share of the actual costs for 2015 is calculated based on ten full months of service in 2015.

3.5 The Group determined that the actual cost shares for the period 1 January to 31 December 2015 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 in addition to States which receive SADIS service, but have not acceded to the Agreement, on the basis of the number of available tonne-kilometres (ATKs) in scheduled services for 2015, 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.

3.6 The Group noted that the adjustment for 2015, which is the difference between the 2015 actual costs and the 2015 estimated costs approved by the SCRAG/15 Meeting.

TABLE 1(B)

**ADJUSTMENT OF ACTUAL SADIS COSTS TO ESTIMATED SADIS COSTS
FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2015**

	Cost Item	Actual Costs (UK £)	Reference
(1)	2015 Actual Cost	728 214	Table 1(A)
(2)	2015 Estimated Cost	790 315	SCRAG/15 Report, Table 3
(3)	Over-recovery for 2015 (to be subtracted from the amount billed in 2017)	-62 101	(1) - (2) <i>(see Appendix E, column 6 and Appendix I, column 2)</i>

The Group formulated the following Conclusion:

Conclusion 17/1 -

The actual cost shares for 2015 as shown in Appendix E to the SCRAG/17 Report for the States participating in the SCAR Arrangement are approved by the SCRAG/17 Meeting, with consequential adjustments to be made by the United Kingdom in its billing of these States for 2017, in accordance with Article XI, paragraph 3 of the SADIS Agreement.

3.7 The Group received information from the Observer from the United Kingdom on the status of payment of the cost shares of 2015 as at 1 October 2016. It was noted that a total amount of £751 492 was collected for 2015 (see Appendix G – Table 1). A balance of £762, which represents the sum of five States with balances owed, remains outstanding. Also noted is that no amounts for years prior to 2015 were collected (see Appendix G – Table 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 3.8 above, the Group agreed that the over-recovery of SADIS cost shares for the year 2015 amounts to £14 178 as shown in Table 2. The over-recovery of 2015 is the amount subject to collection for 2015 (£737 314), less the amounts collected for 2015 (£751 492). The Group formulated the following Conclusions:

Conclusion 17/2 -

An over-recovery, amounting to £14 178 of the SADIS cost shares for the year 2015 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.

TABLE 2
OVER-RECOVERY FOR 2015

		UK £	References
(1)	Actual costs for 2015	728 214	Table 1 (A)
(2)	Under-recovery for 2013	9 100	SCRAG/15 Report, Table 2
(3)	Subject to collection for 2015	737 314	(1) + (2)
(4)	Collected from States for 2015 (as at 1 December 2016)	- 751 492	Appendix G – Table 1
(5)	Collected from States for years prior to 2015 (as at 1 December 2016)	0	Appendix G – Table 2
(6)	Over-recovery for 2015 (to be subtracted from the assessments for 2017)	-14 178	(3) + (4) + (5) <i>(see Appendix H, column 5)</i>

AGENDA ITEM 4: REVIEW OF ESTIMATED SADIS COSTS AND COST SHARES FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2017 AND ESTIMATED COSTS FOR THE NEXT 2-5 YEARS

Review of the 2017 Estimated SADIS Costs

4.1 The Group reviewed the cost estimates for providing the SADIS services in the year 2017.

4.2 The cost estimates for 2017 are detailed in Appendix F and total £628 411. 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 2017

Cost Item	Estimated Costs (UK £)
UK Meteorological Office	242 552
UK NATS Gateway	336 683
UK CAA administrative costs	4 000
Sub-total UK	583 235
ICAO support services costs	45 176
TOTAL	628 411

4.3 The Group considered the over-recovery in Table 2 in the calculation of the amount to be assessed under the SADIS Agreement for 2017. The calculation of the amount to be assessed is presented in Table 4.

TABLE 4

AMOUNT TO BE ASSESSED UNDER THE SADIS AGREEMENT FOR 2017

		UK £	References
(1)	Over-recovery for 2015	-14 178	Table 2
(2)	Estimated costs for 2017	628 411	Table 3
(3)	Amount to be assessed for 2017	614 233	(1) + (2) <i>(see Appendix H, column 6)</i>

4.4 The Group determined that the 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, on the basis of the number of available tonne-kilometres (ATKs) in scheduled services for 2015, in accordance with Article XI, paragraph 3, of the SADIS Agreement.

4.5 The Group noted that two States, the Democratic People's Republic of Korea and Uzbekistan, had their services terminated on 31 July 2016 and were therefore not assessed for 2017. Norway, which has now formally acceded to the SADIS Agreement, is included in the calculation of the assessment of cost shares for 2017. Montenegro is also assessed for 2017.

4.6 The cost share in percentage terms and the share in £ sterling, including the share of over-recovery for 2015, to be borne by each State, are shown in Appendix H. Appendix I shows the amounts to be billed to each State in 2017, corresponding to the adjustment for 2015 (Appendix E), plus the assessment for 2017 (Appendix H), less any deduction of unused credit balances from previous years. The Group formulated the following Conclusion:

Conclusion 17/3 -

The estimated cost shares for 2017 as shown in Appendix H to the SCRAG/17 Report for each State participating in the SCAR Arrangement are approved by the SCRAG/17 Meeting for collection by the United Kingdom. The Secretariat will place the tables in the SCRAG Web page.

TABLE 5

AMOUNT TO BE BILLED UNDER THE SADIS AGREEMENT FOR 2017

		UK £	References
(1)	Amount to be Assessed for 2017	614 233	Table 4
(2)	Adjustment of Actual SADIS Costs to Estimated Costs for 2015	-62 101	Table 1(B)
(3)	Deduction of Unused Credit Balances from Previous Years	-990	Appendix I
(4)	Amount to be Billed for 2017	551 142	(1)+(2)+(3) <i>(see Appendix I, column 5)</i>

Cost Estimates for the Years 2018 to 2020

4.7 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 2018 to 2020 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 2018, 2019 AND 2020*

Cost Item	Estimated Costs 2018 (UK £)	Estimated Costs 2019 (UK £)	Estimated Costs 2020 (UK £)
UK Meteorological Office	242 552	242 552	242 552
UK NATS Gateway	339 624	338 799	299 415
UK CAA administrative costs	4 000	4 000	4 000
Sub-total UK	586 176	585 351	545 967
ICAO support services costs	45 176	45 176	45 176
TOTAL	631 352	630 527	591 143

*Estimates based on 2016 prices.

4.8 The Group noted the information presented by the United Kingdom regarding the depreciated assets as at 31 December 2015 (see Appendix C) and approved the depreciation charges applicable from 2016 to 2019, inclusive.

AGENDA ITEM 5: REVIEW OF THE STATUS OF SADIS PAYMENTS FOR THE CURRENT YEAR (2016) INVOICES

5.1 The Group reviewed WP/13 on the status of payment for the current (2016) year, presented by the United Kingdom.

5.2 The Group formulated the following Conclusion:

Conclusion 17/4 -

The Group agreed that the SADIS Provider be invited to withdraw access to the SADIS FTP for those States who, as at 1200 UTC on 24 January 2017, have cumulative outstanding payments over GBP 100 due for any invoice dated 2016 or earlier.

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 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 J.

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

Conclusion 17/5 -

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 J to the SCRAG/17 Report.

AGENDA ITEM 7: FUTURE WORK AND ARRANGEMENTS FOR THE SCRAG/18 MEETING

7.1 The Group agreed that, subject to confirmation, its Eighteenth Meeting should be held in Gatwick, United Kingdom, on 8 November 2017.

AGENDA ITEM 8: OTHER BUSINESS

8.1 Two additional working papers were presented: WP/14, *Proposed Amendments to Annex I of the SADIS Agreement* and WP/15, *Proposed Amendments to the SADIS Agreement*. The amendments proposed by these papers are the result of the establishment and formation of the WG-MOG, and the change in the SADIS acronym to reflect the change in the SADIS services. The Group discussed the required procedures to adopt an amendment to the SADIS Agreement (stipulated in Article XVII, paragraphs 1-4, of the Agreement). Due to these requirements, it was noted that WP/15, *Proposed Amendments to the SADIS Agreement* could not be immediately implemented. With regards to WP/14, *Proposed Amendments to Annex I of the SADIS Agreement*, the Group noted that the SCRAG may amend the Annexes to the Agreement, in accordance with Article XVII, paragraph 5 of the SADIS Agreement. The proposed amendments to Annex I of the Agreement are shown in Appendix K.

Subsequent to the meeting, the Group agreed to adopted the following Conclusion:

Conclusion 17/6 -

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 K to the SCRAG/17 Report.

8.2 The Group expressed its appreciation to the Météo France Office in Toulouse for their hospitality and excellent support received during the meeting.

APPENDIX A

LIST OF PARTICIPANTS

Member

Mr. Leander Jamin

Personnel and Finance Department
Head of Controlling and Accounting
Deutscher Wetterdienst
Frankfurter Str 135
63067 Offenbach
Germany
Tel.: +49 69 8062 44 11
Fax: +49 69 8062 44 76
E-mail: Leander.Jamin@dwd.de

Member/Observer

Mr. Patrick Simon

Information Systems Management
Aeronautics, Météo France
42, avenue Gustave Coriolis
F-31057 Toulouse
Cedex, France 31057
Tel.: +33 5 61 07 81 50
Fax: +33 5 61 07 81 09
E-mail: patrick.simon@meteo.fr

Observers

International Air Transport Association (IATA)

Mr. Magdy Reda

ATC Charges Manager
Route de l'Aéroport 33
1215 Genève, Switzerland
Tel.: +41 22 770 2070
Mobile: +41 76 589 90 88
E-mail: redam@iata.org

United Kingdom as SADIS Provider and Rapporteur, METP WG-MOG

Mr. Colin Hord

Principal MET, AIM and Radio Licensing
Civil Aviation Authority
Safety and Airspace Regulation Group
CAA House (K6G1)
45-59 Kingsway
London WC2B 6TE
United Kingdom
Tel.: +44 207 453 6527
Fax: +44 207 453 6565
E-mail: colin.hord@caa.co.uk

United Kingdom as SADIS Provider

Mr. Chris Tyson

SADIS Manager & International Aviation Analyst
Met Office
Fitzroy Road, Exeter
EX1 3PB
United Kingdom
Tel.: +44 1392 884892
Fax: +44 1392 885681
E-mail: chris.tyson@metoffice.gov.uk

Mr. Nigel Gait

International Aviation Manager
Met Office
Fitzroy Road, Exeter
EX1 3PB
United Kingdom
Tel.: +44 1392 886268
Fax: +44 1392 885681
E-mail: nigel.gait@metoffice.gov.uk

Mr. Graham Easthope

Operational Support Specialist
EO Data Services
NATS Swanwick
Sopwith Way
Swanwick
Hampshire SO31 7AY
United Kingdom
Tel.: +44 489 887166
E-mail: Graham.EASTHOPE@nats.co.uk

International Civil Aviation Organization (ICAO)

Ms. Joanna Zorbas
Secretary, SCRAG
Joint Financing Officer
Joint Financing Section
Air Transport Bureau
999 Robert-Bourassa Boulevard
Montréal, Quebec
Canada H3C 5H7
Tel.: +1 514 954-8219, ext. 8375
Fax: +1 514 954-6744
E-mail: jzorbas@icao.int

APPENDIX B

LIST OF SCRAG/17 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/3 Meeting	Rapporteur, METP WG-MOG
4	3	2015 ICAO actual SADIS administrative costs	Secretariat
5	3	2015 actual SADIS costs	United Kingdom
6	3 & 4	Status of payments for the year 2015	United Kingdom
7	3	Summary of actual costs and cost shares for the year 2015	Secretariat
8	4	Depreciated assets: SADIS costs	United Kingdom
9	4	2017 ICAO estimated SADIS administrative costs	Secretariat
10	4	Estimated SADIS costs: 2 to 5 years	United Kingdom
11	4	Summary of estimated costs and assessments for the year 2017	Secretariat
12	6	Amendment to Annex II, SADIS Inventory, to the SADIS Agreement	Secretariat
13	5	Status of payments for the current (2016) year	United Kingdom
14	8	Proposed amendments to Annex I of the SADIS Agreement	United Kingdom
15	8	Proposed amendments to the SADIS Agreement	Secretariat

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APPENDIX C

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

(1) Inventory of Assets: 2016	(2) Original Value	(3) Depreciated Charges in 2016	(4) Total Accumulated Depreciation	(5) Net Depreciated Value at End of 2016
Original HUB Investment, Trial Systems and Capitalized Operation Asset	£713,769	£0	£713,769	£0
Two-Way Hub Enhancement, VSATS and Development	£375,000	£0	£375,000	£0
SADIS 2G Operational System	£87,428	£0	£87,428	£0
SADIS 2G Hardware Refresh	£59,988	£0	£59,988	£0
SADIS Gateway	£227,462	£0	£227,462	£0
SADIS Gateway Mid-life Upgrade	£187,330	£37,466	£74,932	£112,398
SADIS Uplink Replacement Hardware	£28,220	£7,055	£28,220	£0
Total UK	£1,679,197	£44,521	£1,566,799	£112,398

APPENDIX D
STATUS OF ACCESSION TO THE SADIS AGREEMENT AS AT 1 OCTOBER 2016

STATES WHICH FORMALLY ACCEDED TO THE SADIS AGREEMENT

STATES	LDC's Exempted
Albania	
Armenia	
Australia	
Austria	
Bahrain	
Belgium	
Botswana	
Cameroon	
China	
Congo	
Côte d'Ivoire	
Croatia	
Cyprus	
Czech Republic	
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	LDC's Exempted
Afghanistan	X
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	X
Eritrea	X
Ethiopia	X
Gambia	X
Ghana	
Guinea	X
Guinea-Bissau	X
Iceland	
India	
Indonesia	
Iraq	
Ireland	
Kenya	
Libya	
Malawi	X
Maldives	
Mali	X
Malta	
Mauritania	X
Montenegro	
Mozambique	X
Namibia	
Nepal	X
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
Swaziland	
The former Yugoslav Republic of Macedonia	
Togo	X
Turkey	
Uganda	X
Uzbekistan **	
Yemen	X
Zambia	X
Zimbabwe	

** This State does not presently receive the service.

APPENDIX E

**ACTUAL COST SHARES FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2015*
AND ADJUSTMENT FOR 2015**

STATES	2015 Available Tonne-Kilometres in Scheduled Services (000)	Percentage Cost Share	Share of 2015 Actual Costs (£ Sterling)	Share of 2015 Estimated Costs (SCRAG/15) (£ Sterling)	Adjustment for 2015 (£ Sterling)
Albania (note 1)	25 609	0.004%	27.72	201.87	- 174.15
Algeria	1 073 806	0.160%	1 162.52	1 176.65	- 14.13
Armenia (note 1)	11 058	0.002%	11.97	14.68	- 2.71
Australia	23 351 842	3.472%	25 281.04	33 038.62	- 7 757.58
Austria	3 669 658	0.546%	3 972.82	4 587.76	- 614.94
Azerbaijan	696 312	0.104%	753.84	702.39	51.45
Bahrain	2 080 638	0.309%	2 252.53	2 746.19	- 493.66
Belgium	5 459 056	0.812%	5 910.05	6 939.76	- 1 029.71
Bosnia and Herzegovina	444	0.000%	0.48	3.71	- 3.23
Botswana	34 252	0.005%	37.08	65.53	- 28.45
Bulgaria	177 065	0.026%	191.69	239.19	- 47.50
Cameroon	75 219	0.011%	81.43	99.88	- 18.45
Cape Verde	150 366	0.022%	162.79	246.03	- 83.24
China: - Beijing	117 667 588	17.493%	127 388.61	125 850.48	1 538.13
- Hong Kong	33 886 256	5.038%	36 685.74	39 604.73	- 2 918.99
- Macau	654 639	0.097%	708.72	679.55	29.17
Congo	106 172	0.016%	114.94	96.46	18.48
Côte d'Ivoire	79 240	0.012%	85.79	117.39	- 31.60
Croatia	188 773	0.028%	204.37	252.00	- 47.63
Cyprus	5 476	0.001%	5.93	375.13	- 369.20
Czech Republic	1 502 920	0.223%	1 627.08	1 166.92	460.16
Democratic People's Republic of Korea	71 765	0.011%	77.69	47.87	29.82
Denmark	3 658 828	0.544%	3 961.10	2 420.26	1 540.84
Egypt	4 517 236	0.672%	4 890.42	6 264.97	- 1 374.55
Estonia	75 078	0.011%	81.28	118.77	- 37.49
Finland	4 579 610	0.681%	4 957.95	5 799.03	- 841.08
France	32 016 749	4.760%	34 661.79	39 038.61	- 4 376.82
Gabon	5 040	0.001%	5.46	0.87	4.59
Georgia	86 035	0.013%	93.14	60.11	33.03
Germany	41 377 392	6.151%	44 795.75	52 430.44	- 7 634.69
Ghana	31 862	0.005%	34.49	43.68	- 9.19
Greece	1 452 618	0.216%	1 572.62	1 241.55	331.07
Hungary	3 097 960	0.461%	3 353.90	2 662.52	691.38
Iceland	1 479 946	0.220%	1 602.21	1 566.85	35.36
India	20 288 532	3.016%	21 964.65	23 469.10	- 1 504.45
Indonesia (note 2)	10 810 263	1.607%	11 703.34	16 676.04	- 4 972.70
Iraq	108 847	0.016%	117.84	157.89	- 40.05
Ireland	14 839 946	2.206%	16 065.94	18 709.36	- 2 643.42
Israel	4 342 596	0.646%	4 701.36	5 798.61	- 1 097.25
Italy	5 650 360	0.840%	6 117.16	7 977.17	- 1 860.01
Jordan	1 737 224	0.258%	1 880.74	2 431.41	- 550.67
Kazakhstan	1 868 688	0.278%	2 023.07	2 250.36	- 227.29
Kenya	1 829 648	0.272%	1 980.80	2 030.65	- 49.85
Kuwait	1 820 957	0.271%	1 971.39	2 230.02	- 258.63
Latvia	401 316	0.060%	434.47	613.10	- 178.63
Libya	760 826	0.113%	823.68	864.86	- 41.18
Lithuania	396 666	0.059%	429.44	509.77	- 80.33

* Excludes exempted Least Developed Countries

**ACTUAL COST SHARES FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2015*
AND ADJUSTMENT FOR 2015**

STATES	2015 Available Tonne-Kilometres in Scheduled Services (000)	Percentage Cost Share	Share of 2015 Actual Costs (£ Sterling)	Share of 2015 Estimated Costs (SCRAG/15) (£ Sterling)	Adjustment for 2015 (£ Sterling)
Maldives (note 1)	1 490	0.000%	1.61	1.78	- 0.17
Malta	326 374	0.049%	353.34	500.43	- 147.09
Morocco	3 078 056	0.458%	3 332.35	2 844.77	487.58
Namibia	284 529	0.042%	308.04	363.25	- 55.21
Netherlands	20 416 109	3.035%	22 102.77	27 858.78	- 5 756.01
Nigeria	458 741	0.068%	496.64	681.26	- 184.62
Oman	2 547 752	0.379%	2 758.23	2 501.00	257.23
Pakistan	3 579 690	0.532%	3 875.42	4 666.67	- 791.25
Poland	1 286 558	0.191%	1 392.85	1 660.22	- 267.37
Portugal	5 268 345	0.783%	5 703.59	6 684.83	- 981.24
Qatar	29 799 708	4.430%	32 261.59	28 348.28	3 913.31
Republic of Moldova	189 637	0.028%	205.30	144.10	61.20
Romania	721 483	0.107%	781.09	848.63	- 67.54
Russian Federation	32 469 435	4.827%	35 151.87	40 584.79	- 5 432.92
Saudi Arabia	12 386 413	1.841%	13 409.71	15 628.83	- 2 219.12
Senegal	34 595	0.005%	37.45	108.37	- 70.92
Serbia	419 831	0.062%	454.52	282.18	172.34
Seychelles	228 771	0.034%	247.67	313.24	- 65.57
Slovakia	2 430	0.000%	2.63	6.87	- 4.24
Slovenia	172 279	0.026%	186.51	173.00	13.51
South Africa	6 098 619	0.907%	6 602.45	8 667.11	- 2 064.66
Spain	15 424 784	2.293%	16 699.09	16 952.57	- 253.48
Swaziland (note 1)	2 047	0.000%	2.22	2.81	- 0.59
Sweden	3 267 409	0.486%	3 537.34	2 418.81	1 118.53
Switzerland	8 951 548	1.331%	9 691.07	11 713.04	- 2 021.97
Thailand	16 355 457	2.432%	17 706.65	20 545.12	- 2 838.47
The former Yugoslav Republic of Macedonia (note 1)	41 167	0.006%	44.57	51.76	- 7.19
Tunisia	749 855	0.111%	811.80	1 202.76	- 390.96
Turkey	29 949 232	4.452%	32 423.46	28 405.81	4 017.65
Ukraine	1 138 694	0.169%	1 232.77	1 459.35	- 226.58
United Arab Emirates	76 796 442	11.417%	83 140.92	84 378.71	- 1 237.79
United Kingdom	44 094 462	6.555%	47 737.32	57 406.42	- 9 669.10
Uzbekistan	1 274 468	0.189%	1 379.76	1 812.62	- 432.86
Viet Nam	6 468 550	0.962%	7 002.94	7 368.79	- 365.85
Zimbabwe	156 694	0.023%	169.64	109.25	60.39
TOTAL	672 644 031	100.000%	728 214.00	790 315.00	- 62 101.00

* Excludes exempted Least Developed Countries.

Note 1: 2015 ATKs were not received for Albania, Armenia, the Maldives, Swaziland 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: Indonesia services were withdrawn on 28 January 2015 and then reinstated on 28 February 2015. As a result, Indonesia's share of 2015 actual costs was calculated based on 10 full months of service.

APPENDIX F

SADIS COST ESTIMATES FOR 2017 TO 2020 FOR SADIS SERVICES PROVIDED BY THE UNITED KINGDOM METEOROLOGICAL OFFICE

TABLE 1: UKMO Cost and manpower resource projections until year 2020 (at 2016 prices)

INVENTORY REF:	Note	DESCRIPTION	Actual 2015	FOO 2016	Est 2017	Est 2018	Est 2019	Est 2020		
1 UK MET OFFICE COSTS										
1. Equipment										
Principally procured for SADIS										
		comms between Whitehill & Met Office	a	SADIS 2G	5,816	3,393	0	0	0	0
		comms link SADIS Gateway & Met Office	b	SADIS 2G/SADIS FTP	3,340	3,340	3,340	3,340	3,340	3,340
				ISDN Back-up	0	0	0	0	0	0
Not procured principally for SADIS										
		message switch (FTP)	c	SADIS FTP	6,549	6,220	6,220	6,220	6,220	6,220
		message switch (2G)		SADIS 2G	4,846	2,685	0	0	0	0
		internet bandwidth (FTP)	d	FTP	7,135	10,250	10,250	10,250	10,250	10,250
		FTP equipment running costs		FTP	19,264	19,264	19,264	19,264	19,264	19,264
		Service Desk Equipment Costs	e	Service Desk eqpt	12,520	12,750	12,750	12,750	12,750	12,750
		Serial Comms Costs and maintenance		Serial Comms	10,614	10,601	0	0	0	0
		sub total			70,084	68,503	51,824	51,824	51,824	51,824
2. Procured Services										
		space segment annual lease	f	Satellite Segment	56,570	27,981	0	0	0	0
		annual maintenance	g	2G Maintenance	35,128	23,662	0	0	0	0
				2G Facilities Management	6,300	3,675	0	0	0	0
				IT Hall Space	14,639	14,873	14,873	14,873	14,873	14,873
			h	ad hoc maintenance	0	5,000	5,000	5,000	5,000	5,000
		sub total			112,637	75,191	19,873	19,873	19,873	19,873
3. Annual Staff Requirements										
Help Desk										
			i	Help Desk 0.3%	5,916	6,000	6,000	6,000	6,000	6,000
				Technical Team Leader 3.5%	12,520	12,520	12,520	12,520	12,520	12,520
				Network Systems Supervisor 7%	25,040	25,040	25,040	25,040	25,040	25,040
Additional Support										
		Systems Integration Team	j	Network Computer Engineer	5,292	5,292	5,460	5,460	5,460	5,460
		Message Switching Manager		Message Switching Manager	5,670	5,670	5,850	5,850	5,850	5,850
		Administrator		Executive Officer	62,850	62,850	64,235	64,235	64,235	64,235
		International Aviation Management		Aviation Manager	7,290	7,290	7,665	7,665	7,665	7,665
		Data Traffic		Communications Engineer	1,890	1,890	1,950	1,950	1,950	1,950
		Contract Procurement and Management		Senior Procurement Officer	1,512	1,512	1,560	1,560	1,560	1,560
		Message Switching Team		Technical Officer	5,670	5,670	5,850	5,850	5,850	5,850
		Invoice Administration		Finance Officer & Business Acct	14,850	14,850	15,465	15,465	15,465	15,465
		SADIS 2G decommissioning	k	Resource costs	0	2,000	0	0	0	0
Travel Costs										
			l	SADISOPSG, METP meetings & SCR	1,479	1,000	1,000	1,000	1,000	1,000
		sub total			149,979	151,584	152,595	152,595	152,595	152,595
		TOTAL			332,700	295,278	224,292	224,292	224,292	224,292
Cost of Depreciated Capital										
				SADIS 2G	0	0	0	0	0	0
				FTP enhancements	0	0	0	0	0	0
			m	SADIS 2G CP6000 replacement (with	21,165	7,055	0	0	0	0
		sub total			353,865	302,333	224,292	224,292	224,292	224,292
			n	Cost of Capital	17,960	17,960	17,960	17,960	17,960	17,960
		Administrative costs	o	Admin charges	375	300	300	300	300	300
		Total UKMO Costs			372,200	320,593	242,552	242,552	242,552	242,552

TABLE 2: NATS and other SADIS Cost Projections until 2020 (at 2016 prices)

INVENTORY REF:	Note	DESCRIPTION	Actual 2015	FOO 2016	Est 2017	Est 2018	Est 2019	Est 2020
2		NATS Gateway Costs						
	p	Staff Costs						
		Operational Staff	250,860	266,738	270,690	275,445	276,484	276,499
		Engineering Staff	4,048	9,660	8,302	8,449	8,540	8,561
		Administration Staff	93	1,122	N/A	N/A	N/A	N/A
		Engineering Staff	N/A	N/A	N/A	N/A	N/A	N/A
		sub total	255,001	277,520	278,992	283,894	285,024	285,060
	q	Systems Maintenance						
		IP Comms link to UKMO	N/A	N/A	N/A	N/A	N/A	N/A
		X.25 Comms link to UKMO	N/A	N/A	N/A	N/A	N/A	N/A
		Systems Maintenance	N/A	N/A	N/A	N/A	N/A	N/A
		Communications	1,720	1,567	1,025	1,043	1,061	1,079
		Maintenance	9,599	9,169	9,347	9,509	9,674	9,841
		T&RE	721	3,200	3,263	3,319	3,377	3,435
	r	Sadis Gateway Upgrade (Capital Project)						
		Cost of Depreciated Capital						
		Capital Investments	37,466	37,466	37,466	37,466	37,466	N/A
		Interest at 5.88%	10,983	8,786	6,590	4,393	2,197	N/A
		Sadis Backup enhancement						
		procurement & Installation	0	0	0	0	0	0
		annual support costs	0	0	0	0	0	0
		Total NATS Gateway Costs	315,490	337,708	336,683	339,624	338,799	299,415
		CAA Administration Costs	3,813	4,000	4,000	4,000	4,000	4,000
		ICAO Administration Costs	36,711	36,711	45,176	45,176	45,176	45,176
		TOTAL SADIS COSTS	728,214	699,012	628,411	631,352	630,527	591,143

APPENDIX G

STATUS OF PAYMENT OF THE ASSESSMENT FOR 2015 AND OF BALANCES FOR YEARS PRIOR TO 2015 AS AT 1 OCTOBER 2016

**TABLE 1
STATUS OF PAYMENT OF THE ASSESSMENT FOR 2015
AS AT 1 OCTOBER 2016**

STATES	(£ Sterling)		Administrative Charges Applied	Application of Credit Balance (or part of)	Unpaid Amount (excess paid) as at 1 October 2015
	Total Amount Billed for 2015 (SCRAG/15 Report, Appendix I)	Amount Collected as at 1 October 2016			
Albania	84.92	84.92			0.00
Algeria	1 330.34	1 330.34			0.00
Armenia	- 136.87	- 136.87			0.00
Australia	37 332.38	37 332.38			0.00
Austria	3 602.73	3 602.73			0.00
Azerbaijan	837.05	837.05	2.00		0.00
Bahrain	550.38	550.38	12.00		0.00
Belgium	9 658.81	9 658.81			0.00
Bosnia and Herzegovina	- 136.46				- 136.46
Botswana	61.15	61.15			0.00
Bulgaria	197.16	197.16			0.00
Cameroon	109.40	109.40			0.00
Cape Verde	229.23	229.23			0.00
China: - Beijing	121 394.72	121 394.72			0.00
- Hong Kong	32 853.93	32 853.93	27.00		0.00
- Macau	707.92	707.92			0.00
Congo	42.46	42.46			0.00
Côte d'Ivoire	8.39	8.39			0.00
Croatia	172.96	172.96	7.00		0.00
Cyprus	26.85	26.85			0.00
Czech Republic	787.08	787.08	6.00		0.00
Democratic People's Republic of Korea	69.15	0.00			69.15
Denmark	1 119.08	1 119.08			0.00
Egypt	6 719.50	6 719.50	25.00		0.00
Estonia	102.41	102.41	7.00		0.00
Finland	4 658.70	4 658.70			0.00
France	36 934.45	36 934.45			0.00
Gabon	- 82.63	- 82.63			0.00
Georgia	- 100.35	0.00			- 100.35
Germany	40 476.83	40 476.83			0.00
Ghana	46.38	46.38			0.00
Greece	636.43	636.43	22.25		0.00
Hungary	1 488.06	1 488.06	0.06		0.00
Iceland	1 729.53	1 729.53			0.00
India	17 372.43	17 372.43			0.00
Indonesia	13 597.92	13 597.92			0.00
Iran (Islamic Republic of)	-1 037.07	0.00			-1 037.07
Iraq	310.53	310.53			0.00
Ireland	16 954.39	16 954.39			0.00
Israel	5 865.38	5 865.38			0.00
Italy	4 704.36	4 704.36	7.00		0.00
Jordan	1 907.40	1 907.40			0.00
Kazakhstan	2 592.82	2 592.82			0.00
Kenya	1 663.58	1 663.58			0.00
Kuwait	1 546.17	1 546.17	11.00		0.00
Latvia	369.12	369.12	7.00		0.00
Libya	490.98	0.00			490.98

**STATUS OF PAYMENT OF THE ASSESSMENT FOR 2015
AS AT 1 OCTOBER 2016**
(£ Sterling)

STATES	Total Amount Billed for 2015 (SCRAG/15 Report, Appendix I)	Amount Collected as at 1 October 2016	Administrative Charges Applied	Application of Credit Balance (or part of)	Unpaid Amount (excess paid) as at 1 October 2015
Lithuania	999.03	999.03			0.00
Maldives	1.59	1.59			0.00
Malta	419.69	419.69	7.00		0.00
Morocco	1 492.15	1 492.15	32.00		0.00
Namibia	- 146.16	0.00			- 146.16
Netherlands	30 423.03	30 423.03	63.74		0.00
Nigeria	747.97	747.97			0.00
Oman	2 687.91	2 687.91			0.00
Pakistan	3 772.43	3 772.43	32.00		0.00
Poland	1 489.81	1 489.81			0.00
Portugal	5 618.77	5 618.77			0.00
Qatar	30 012.68	30 012.68	29.05		0.00
Republic of Moldova	119.97	119.97			0.00
Romania	586.43	586.43			0.00
Russian Federation	42 518.98	42 518.98			0.00
Saudi Arabia	15 860.97	15 860.97			0.00
Senegal	- 118.98	- 118.98			0.00
Serbia	248.00	248.00			0.00
Seychelles	190.97	0.00			190.97
Slovakia	8.58	8.58			0.00
Slovenia	340.24	340.24			0.00
South Africa	7 561.45	7 561.45	7.00		0.00
Spain	21 196.07	21 196.07	7.00		0.00
Sri Lanka	-2 984.98	-2 984.98			0.00
Swaziland	2.64	0.00			2.64
Sweden	1 557.55	1 557.55			0.00
Switzerland	10 858.54	10 858.54	7.00		0.00
Syrian Arab Republic	-1 222.72	0.00			-1 222.72
Thailand	19 433.49	19 433.49	22.50		0.00
The former Yugoslav Republic of Macedonia	51.59	51.59			0.00
Tunisia	2 078.27	2 078.27			0.00
Turkey	32 693.86	32 693.86	12.00		0.00
Ukraine	- 41.13	0.00			- 41.13
United Arab Emirates	94 290.70	94 290.70			0.00
United Kingdom	47 793.10	47 793.10			0.00
Uzbekistan	1 512.42	1 512.42			0.00
Viet Nam	7 656.87	7 656.87	22.50		0.00
Zimbabwe	7.82	0.00			7.82
TOTAL	749 569.68	751 492.01	375.10	0.00	-1 922.33

TABLE 2
STATUS OF PAYMENT OF BALANCES FOR YEARS PRIOR TO 2015
AS AT 1 OCTOBER 2016
(£ Sterling)

STATES	Balance Due for Years Prior to 2015	Amount Collected as at 1 October 2016	Administrative Charges Applied	Application of Credit Balance (or part of)	Unpaid Amount (excess paid) as at 1 October 2016
Armenia	- 1.79				- 1.79
Côte d'Ivoire	- 241.57				- 241.57
Cyprus	- 198.42				- 198.42
Gabon	- 979.50				- 979.50
Ghana	- 28.14				- 28.14
Iran (Islamic Republic of)	16 385.20				16 385.20
Libya	- 567.08				- 567.08
Seychelles	- 208.61				- 208.61
Syrian Arab Republic	3 838.06				3 838.06
Turkmenistan	1 228.35				1 228.35
Zimbabwe	- 491.51				- 491.51
TOTAL	18 734.99	0.00	0.00	0.00	18 734.99

APPENDIX H

**ESTIMATED COST SHARES AND ASSESSMENTS
FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2017***

STATES	2015 Available Tonne-Kilometres in Scheduled Services (000)	Percentage Cost Share	Share of 2017 Estimated Costs (£ Sterling)	Share of Over-recovery for 2015 (£ Sterling)	Amount to be Assessed for 2017 (£ Sterling)
Albania	25 609	0.004%	23.76	- 0.54	23.22
Algeria	1 073 806	0.159%	996.13	- 22.47	973.66
Armenia	11 058	0.002%	10.26	- 0.23	10.03
Australia	23 351 842	3.447%	21 662.66	- 488.75	21 173.91
Austria	3 669 658	0.542%	3 404.21	- 76.80	3 327.41
Azerbaijan	696 312	0.103%	645.94	- 14.57	631.37
Bahrain	2 080 638	0.307%	1 930.13	- 43.55	1 886.58
Belgium	5 459 056	0.806%	5 064.17	- 114.26	4 949.91
Bosnia and Herzegovina	444	0.000%	0.41	- 0.01	0.40
Botswana	34 252	0.005%	31.77	- 0.72	31.05
Bulgaria	177 065	0.026%	164.26	- 3.71	160.55
Cameroon	75 219	0.011%	69.78	- 1.57	68.21
Cape Verde	150 366	0.022%	139.49	- 3.15	136.34
China: - Beijing	117 667 588	17.370%	109 155.96	-2 462.74	106 693.22
- Hong Kong	33 886 256	5.002%	31 435.05	- 709.23	30 725.82
- Macau	654 639	0.097%	607.28	- 13.70	593.58
Congo	106 172	0.016%	98.49	- 2.22	96.27
Côte d'Ivoire	79 240	0.012%	73.51	- 1.66	71.85
Croatia	188 773	0.028%	175.12	- 3.95	171.17
Cyprus	5 476	0.001%	5.08	- 0.11	4.97
Czech Republic	1 502 920	0.222%	1 394.20	- 31.46	1 362.74
Denmark	3 658 828	0.540%	3 394.16	- 76.58	3 317.58
Egypt	4 517 236	0.667%	4 190.48	- 94.54	4 095.94
Estonia	75 078	0.011%	69.65	- 1.57	68.08
Finland	4 579 610	0.676%	4 248.34	- 95.85	4 152.49
France	32 016 749	4.726%	29 700.78	- 670.10	29 030.68
Gabon	5 040	0.001%	4.68	- 0.11	4.57
Georgia	86 035	0.013%	79.81	- 1.80	78.01
Germany	41 377 392	6.108%	38 384.31	- 866.01	37 518.30
Ghana	31 862	0.005%	29.56	- 0.67	28.89
Greece	1 452 618	0.214%	1 347.54	- 30.40	1 317.14
Hungary	3 097 960	0.457%	2 873.87	- 64.84	2 809.03
Iceland	1 479 946	0.218%	1 372.89	- 30.97	1 341.92
India	20 288 532	2.995%	18 820.94	- 424.63	18 396.31
Indonesia	12 972 316	1.915%	12 033.95	- 271.51	11 762.44
Iraq	108 847	0.016%	100.97	- 2.28	98.69
Ireland	14 839 946	2.191%	13 766.48	- 310.59	13 455.89
Israel	4 342 596	0.641%	4 028.47	- 90.89	3 937.58
Italy	5 650 360	0.834%	5 241.63	- 118.26	5 123.37
Jordan	1 737 224	0.256%	1 611.56	- 36.36	1 575.20
Kazakhstan	1 868 688	0.276%	1 733.51	- 39.11	1 694.40
Kenya	1 829 648	0.270%	1 697.30	- 38.29	1 659.01
Kuwait	1 820 957	0.269%	1 689.24	- 38.11	1 651.13
Latvia	401 316	0.059%	372.29	- 8.40	363.89
Libya	760 826	0.112%	705.79	- 15.92	689.87

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

**ESTIMATED COST SHARES AND ASSESSMENTS
FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2017***

STATES	2015 Available Tonne-Kilometres in Scheduled Services (000)	Percentage Cost Share	Share of 2017 Estimated Costs (£ Sterling)	Share of Over-recovery for 2015 (£ Sterling)	Amount to be Assessed for 2017 (£ Sterling)
Lithuania	396 666	0.059%	367.97	- 8.30	359.67
Maldives	1 490	0.000%	1.38	- 0.03	1.35
Malta	326 374	0.048%	302.77	- 6.83	295.94
Montenegro	64 989	0.010%	60.29	0.00	60.29
Morocco	3 078 056	0.454%	2 855.40	- 64.42	2 790.98
Namibia	284 529	0.042%	263.95	- 5.96	257.99
Netherlands	20 416 109	3.014%	18 939.29	- 427.30	18 511.99
Nigeria	458 741	0.068%	425.56	- 9.60	415.96
Norway	3 887 590	0.574%	3 606.38	- 81.37	3 525.01
Oman	2 547 752	0.376%	2 363.46	- 53.32	2 310.14
Pakistan	3 579 690	0.528%	3 320.75	- 74.92	3 245.83
Poland	1 286 558	0.190%	1 193.49	- 26.93	1 166.56
Portugal	5 268 345	0.778%	4 887.25	- 110.26	4 776.99
Qatar	29 799 708	4.399%	27 644.11	- 623.70	27 020.41
Republic of Moldova	189 637	0.028%	175.92	- 3.97	171.95
Romania	721 483	0.107%	669.29	- 15.10	654.19
Russian Federation	32 469 435	4.793%	30 120.72	- 679.57	29 441.15
Saudi Arabia	12 386 413	1.828%	11 490.43	- 259.24	11 231.19
Senegal	34 595	0.005%	32.09	- 0.72	31.37
Serbia	419 831	0.062%	389.46	- 8.79	380.67
Seychelles	228 771	0.034%	212.22	- 4.79	207.43
Slovakia	2 430	0.000%	2.25	- 0.05	2.20
Slovenia	172 279	0.025%	159.82	- 3.61	156.21
South Africa	6 098 619	0.900%	5 657.47	- 127.64	5 529.83
Spain	15 424 784	2.277%	14 309.01	- 322.84	13 986.17
Swaziland	2 047	0.000%	1.90	- 0.04	1.86
Sweden	3 267 409	0.482%	3 031.06	- 68.39	2 962.67
Switzerland	8 951 548	1.321%	8 304.03	- 187.35	8 116.68
Thailand	16 355 457	2.414%	15 172.37	- 342.31	14 830.06
The former Yugoslav Republic of Macedonia	41 167	0.006%	38.19	- 0.86	37.33
Tunisia	749 855	0.111%	695.61	- 15.69	679.92
Turkey	29 949 232	4.421%	27 782.82	- 626.83	27 155.99
Ukraine	1 138 694	0.168%	1 056.33	- 23.83	1 032.50
United Arab Emirates	76 796 442	11.337%	71 241.28	-1 607.32	69 633.96
United Kingdom	44 094 462	6.509%	40 904.82	- 923.88	39 980.94
Viet Nam	6 468 550	0.955%	6 000.64	- 135.77	5 864.87
Zimbabwe	156 694	0.023%	145.36	- 3.28	142.08
TOTAL	677 412 430	100.000%	628 411.00	-14 178.00	614 233.00

* 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 2017
(£ Sterling)**

STATES	Adjustment for 2015 (Appendix E)	Assessment for 2017 (Appendix H)	Deduction of Unused Credit Balance from Previous Years	Total Amount to be Billed for 2017
Albania	- 174.15	23.22		- 150.93
Algeria	- 14.13	973.66		959.53
Armenia	- 2.71	10.03	- 1.79	5.53
Australia	- 7 757.58	21 173.91		13 416.33
Austria	- 614.94	3 327.41		2 712.47
Azerbaijan	51.45	631.37		682.82
Bahrain	- 493.66	1 886.58		1 392.92
Belgium	- 1 029.71	4 949.91		3 920.20
Bosnia and Herzegovina	- 3.23	0.40		- 2.83
Botswana	- 28.45	31.05		2.60
Bulgaria	- 47.50	160.55		113.05
Cameroon	- 18.45	68.21		49.76
Cape Verde	- 83.24	136.34		53.10
China: - Beijing	1 538.13	106 693.22		108 231.35
- Hong Kong	- 2 918.99	30 725.82		27 806.83
- Macau	29.17	593.58		622.75
Congo	18.48	96.27		114.75
Côte d'Ivoire	- 31.60	71.85	- 41.50	- 1.25
Croatia	- 47.63	171.17		123.54
Cyprus	- 369.20	4.97		- 364.23
Czech Republic	460.16	1 362.74		1 822.90
Democratic People's Republic of Korea	29.82	0.00		29.82
Denmark	1 540.84	3 317.58		4 858.42
Egypt	- 1 374.55	4 095.94		2 721.39
Estonia	- 37.49	68.08		30.59
Finland	- 841.08	4 152.49		3 311.41
France	- 4 376.82	29 030.68		24 653.86
Gabon	4.59	4.57	- 9.23	- 0.07
Georgia	33.03	78.01		111.04
Germany	- 7 634.69	37 518.30		29 883.61
Ghana	- 9.19	28.89	- 20.20	- 0.50
Greece	331.07	1 317.14		1 648.21
Hungary	691.38	2 809.03		3 500.41
Iceland	35.36	1 341.92		1 377.28
India	- 1 504.45	18 396.31		16 891.86
Indonesia	- 4 972.70	11 762.44		6 789.74
Iraq	- 40.05	98.69		58.64
Ireland	- 2 643.42	13 455.89		10 812.47
Israel	- 1 097.25	3 937.58		2 840.33
Italy	- 1 860.01	5 123.37		3 263.36
Jordan	- 550.67	1 575.20		1 024.53
Kazakhstan	- 227.29	1 694.40		1 467.11
Kenya	- 49.85	1 659.01		1 609.16
Kuwait	- 258.63	1 651.13		1 392.50
Latvia	- 178.63	363.89		185.26
Libya	- 41.18	689.87	- 567.08	81.61
Lithuania	- 80.33	359.67		279.34

**AMOUNTS TO BE BILLED
FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2017
(£ Sterling)**

STATES	Adjustment for 2015 (Appendix E)	Assessment for 2017 (Appendix H)	Deduction of Unused Credit Balance from Previous Years	Total Amount to be Billed for 2017
Maldives	- 0.17	1.35		1.18
Malta	- 147.09	295.94		148.85
Montenegro	0.00	60.29		60.29
Morocco	487.58	2 790.98		3 278.56
Namibia	- 55.21	257.99		202.78
Netherlands	- 5 756.01	18 511.99		12 755.98
Nigeria	- 184.62	415.96		231.34
Norway	0.00	3 525.01		3 525.01
Oman	257.23	2 310.14		2 567.37
Pakistan	- 791.25	3 245.83		2 454.58
Poland	- 267.37	1 166.56		899.19
Portugal	- 981.24	4 776.99		3 795.75
Qatar	3 913.31	27 020.41		30 933.72
Republic of Moldova	61.20	171.95		233.15
Romania	- 67.54	654.19		586.65
Russian Federation	- 5 432.92	29 441.15		24 008.23
Saudi Arabia	- 2 219.12	11 231.19		9 012.07
Senegal	- 70.92	31.37		- 39.55
Serbia	172.34	380.67		553.01
Seychelles	- 65.57	207.43	- 145.46	- 3.60
Slovakia	- 4.24	2.20		- 2.04
Slovenia	13.51	156.21		169.72
South Africa	- 2 064.66	5 529.83		3 465.17
Spain	- 253.48	13 986.17		13 732.69
Swaziland	- 0.59	1.86		1.27
Sweden	1 118.53	2 962.67		4 081.20
Switzerland	- 2 021.97	8 116.68		6 094.71
Thailand	- 2 838.47	14 830.06		11 991.59
The former Yugoslav Republic of Macedonia	- 7.19	37.33		30.14
Tunisia	- 390.96	679.92		288.96
Turkey	4 017.65	27 155.99		31 173.64
Ukraine	- 226.58	1 032.50		805.92
United Arab Emirates	- 1 237.79	69 633.96		68 396.17
United Kingdom	- 9 669.10	39 980.94		30 311.84
Uzbekistan	- 432.86	0.00		- 432.86
Viet Nam	- 365.85	5 864.87		5 499.02
Zimbabwe	60.39	142.08	- 204.94	- 2.47
TOTAL	- 62 101.00	614 233.00	- 990.20	551 141.80

APPENDIX J

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~~

SADIS INVENTORY

(~~2015-2016~~2016-2017)

Note, the SADIS 2G Service will be withdrawn at 1200 UTC on 31 July 2016. As such, a number of items will be decommissioned/withdrawn; and therefore removed from the inventory after that date. These are indicated as appropriate in this amendment.

The inventory items identified below cover the equipment and staffing required to provide, operate and maintain the SADIS. The inventory includes: hub infrastructure (including all additions following the implementation of Secure SADIS FTP) and communications circuits, ISDN data back-up system, procured services, and staff. It should be noted that some equipment items are under lease and form part of a wider infrastructure. Costs of 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 Hub infrastructure and communications circuits

1. The SADIS 2G hub infrastructure connection to the Met Office message switch (MetSwitch) consists of a number of units developed in conjunction with AEP Networks and other suppliers. These are installed either at Exeter, Devon or at the uplink site at Whitehill, Oxfordshire, UK.

NOTE: The SADIS 2G ground-hub equipment will be decommissioned during August 2016 following cessation of the SADIS 2G service.

2. The Secure 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 Secure SADIS FTP service (see Section 1 C).

ii) Principally procured for SADIS

a) At the Met Office;

See Section 1 C for itemized components

b) Communications between Met Office Exeter and Whitehill uplink facility;

2 Fibre Optic 64 Kbit/sec circuits in support of SADIS 2G service

NOTE: These communications links will be decommissioned during August 2016 following cessation of the SADIS 2G service.

c) At the uplink site (Whitehill);

- 1) Units and services leased from Vodafone to support SADIS 2G uplink services:
- 1 (70 to 140 MHz) converter;
 - Use of 1 (140 to C band) converter;
 - Use of satellite hub (lease represents only a very small part of this large aperture) for SADIS 2G services; and

NOTE: The SADIS 2G ground-hub equipment will be decommissioned during August 2016 following cessation of the SADIS 2G service.

- 2) Units forming part of a totally integrated rack structure to provide SADIS 2G service, with back-up (see the list under Section 1 C).

NOTE: These units will be decommissioned during August 2016 following cessation of the SADIS 2G service.

- d) Dual contingent communication links (utilising WMO TCP/IP sockets protocol) between SADIS Gateway and Met Office in support of SADIS 2G service.

NOTE: These communications links will be decommissioned during August 2016 following cessation of the SADIS 2G service.

iii) **Not procured principally for SADIS**

- a) Met Office Message switch (MetSwitch): Total investment £738K¹ of which 1.00 per cent is attributable to the Secure SADIS FTP service usage: switching data to operational FTP service;
- b) Met Office Message switch (MetSwitch): Total investment £738K² of which 0.74 per cent is attributable to SADIS 2G usage: switching data to operational (2G) broadcast service and to 2G monitoring system (MetSwitch Dev);
- c) Allocated bandwidth ~~1624~~ Mbit/sec bursting to ~~2442~~ Mbit/sec between server and Internet Service Provider (ISP) in support of the Secure SADIS FTP service. Individual client connections have a maximum throughput of ~~1024~~~~2048~~ Kbit/sec.
- d) NATS Message switch (CoreMet System);

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

- e) Secure SADIS FTP equipment running costs;

Note. — This comprises support and maintenance of the servers underpinning the Secure SADIS FTP services, a share of the cost for the underlying storage capacity on which the Secure SADIS FTP services are reliant, and operational monitoring of the

¹ budgeted cost for providing MetSwitch service during the fiscal year ~~2015/2016~~2016/2017.

² budgeted cost for providing MetSwitch service during the fiscal year ~~2015/2016~~2016/2017.

Secure SADIS FTP services by Tivoli ensuring problems can be identified and resolved in a timely manner.

- f) Met Office Service Desk equipment; and

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

- g) Met Office Serial Communications.

Note. — Equates to 20 per cent of total share of Met Office Serial Communications. Includes cost of switching serial data from MetSwitch Message Switch to SADIS 2G, comprising staff and equipment costs of supporting serial WAN, TTL Routers, Serial Modems and TTL matrix switches.

NOTE: Item b) will not be required after 31 July 2016 following cessation of the SADIS 2G service.

B. SADIS data back-up system

The SADIS Gateway (UK NATS) has procured a dedicated SADIS data backup arrangement with the WIFS Provider State. The backup infrastructure includes an ISDN connection between the National Weather Service Telecommunications Gateway (NWSTG) and the SADIS Gateway, and an ISDN connection between the SADIS Gateway and Whitehill uplink facility, to provide SADIS data backup.

C. Hub equipment and services located at Exeter and Whitehill

<i>Item</i>	<i>Description</i>	<i>Quantity</i>
1.	Whitehill services (leased from Cable & Wireless)	
1.1	70 MHz to 140 MHz converter	1
1.2	140 MHz to C band converter	1
1.3	Satellite Hub leased bandwidth	1 slot
Items 1.1 to 1.3 will be decommissioned during August 2016 following cessation of SADIS 2G.		
2.	ISDN back-up service to Washington (NWSTG)	
2.1	VadEDGE 4200	3*
2.2	ISDN 2e circuit	1
2.3	Interface cables	2

Note. — Hardware listed under Section 2 is located at Whitehill.

Items 2.1 to 2.3 will be decommissioned during August 2016 following cessation of SADIS 2G.

3. Secure SADIS FTP service

3.1	Dell Poweredge R900 servers with 1 Gb RAM	2
3.2	Dell Poweredge R900 (4 core) servers with 32 Gb RAM *	2
3.3	Shared Storage Arrays (analogous to hard disk storage, but with dynamic upper limit)	2
3.4	VMWave Virtual Platform with Red Hat Linux 5.3 OS	2
3.5	Intel Xeon X7350, 2.93 GHz Processors	2
3.6	Licenses, misc. support and maintenance costs	1

Note 1. — Item 3.2 relates to Digital Signing servers.

Note 2. — Items listed under Section 3 are located at Exeter.

4. SADIS 2G Infrastructure

4.1	MetSwitch port	1
4.2	MegaPAC V-IX Base System Dual PSU including Chassis, 1 CP7000, and 1 switch	2*
4.3	CP7000 for use with MegaPAC V-IX	1*
4.4	VadEDGE 4200	4*
4.5	Uplink modem (Comtech EF Data SDM-300a)	3*
4.6	Communications cabinet and lease	1
4.7	MegaWatch including Enterprise Reports, and PC	1
4.8	Comtech SDM300L demodulator (NER5 downlink)	1
4.9	MetSwitch Comparator functions	1
4.10	Communications rack floor space at Exeter in IT Hall 1 and IT Hall 2, and at Whitehill	3
4.11	Space in stores at Exeter to locate spare hardware	1
4.12	WAN Module	2
4.13	Comtech EF Data SMS 301 – redundancy switch	2*
4.14	BRI Module for VadEDGE 4200	2
4.15	Interface cabling	8

** Includes one unit/module stored as a cold spare and one unit as part of downlink that may also be used as a spare for the uplink circuit if necessary.*

Note. — Hardware listed under Section 4 is located at Exeter and Whitehill.

Items 4.1 to 4.15 will be decommissioned during August 2016 following cessation of SADIS 2G.

2. PROCURED SERVICES

- A. Space segment annual lease: Allocated frequency band to SADIS 2G, providing a 64 Kbit/sec data rate (less communications overhead);
- B. Annual maintenance of Met Office Exeter and Whitehill uplink site equipment (SADIS 2G and Secure SADIS FTP server); and

Item A will no longer be required after 31 July 2016 following cessation of SADIS 2G.

Item B will be reduced following cessation of SADIS 2G

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>24-hour Weather Desk support</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. Technical Team Leader (TTL)	Technical Supervisor
2. Networks and Systems Supervisor (NSS)	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	150 staff-days of executive officer
4. International aviation management	15 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 – CACC (OPMET Gateway function)

Note 1. — 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 ~~608610~~ 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.

<i>24-hour support</i>	<i>Resource</i>
1. Air Traffic Services Assistant	521576 staff-days per annum

Note. — Total support for SADIS provided by the 24 hour support for the OPMET Gateway function equates to 18 per cent of the total CACC Helpdesk budget.

2. H24 Maintenance Engineering	1424 staff-days per annum
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<i>Day Support</i>	<i>Resource</i>
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3. Administration-	54541 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
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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 2G and Secure SADIS FTP services.

References to SADIS 2G will be removed in 2016 following cessation of SADIS 2G.

APPENDIX K

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

Editorial note. — Changes proposed are highlighted in tracked-change mode as **deletions** or **additions**.

SADIS SERVICES

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

1. **Broadcast** Internet based (FTP) service

A summary of products available on **SADIS-2G**, ~~SADIS-FTP and Secure SADIS-FTP~~. Detailed descriptions are contained within the ~~specific~~ SADIS User Guides (Parts 1 and 2) ~~to each~~ of these services.

- a) distribution of WAFS upper-air forecasts in ~~GRIB1 and~~ GRIB2 codes 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 and tropical cyclone 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 the Working Group tasked by the Meteorological Panel (METP) to oversee the operational provision of **SADISOPSG** and currently specified as the Meteorological Operations Working Group (WG-MOG);
- 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

ISDN backup link between NWSTG and SADIS Gateway;

~~— ISDN backup link SADIS Gateway and SADIS-2G Uplink facility at Whitehill (UK).~~

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>GRIB1</i>	Gridded binary edition 1 (code)
<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>	Meteorological 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>	Satellite Distribution for Information Relating to Air Navigation Secure Aviation Data Information Service
<i>SADIS FTP</i>	Internet based version provision of SADIS
<i>Secure SADIS FTP</i>	Internet based version of SADIS using Digital Signatures and Digital Certificates to confirm data integrity and authenticity of the data
<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)

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