



SCRAG/16 - REPORT

INTERNATIONAL CIVIL AVIATION ORGANIZATION

**REPORT OF
THE SIXTEENTH MEETING OF THE
SADIS COST RECOVERY ADMINISTRATIVE GROUP
(SCRAG/16)**

(London, 6 November 2015)

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INTRODUCTION

Place and duration

i.1 The Sixteenth Meeting of the SADIS Cost Recovery Administrative Group (SCRAG) was held at the Civil Aviation Authority CAA House in London, on 6 November 2015.

Attendance

i.2 The Meeting was attended by two Members from the European Region (one as an observer) 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

i.3 Mr. Leander Jamin (Germany), was Chairperson of the Meeting. Ms. J. Zorbas, Joint Financing Officer, ICAO Headquarters in Montreal, was Secretary of the Meeting.

Agenda

i.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 2014

Agenda Item 4: Review of estimated SADIS costs and cost shares for the period 1 January to 31 December 2016 and estimated costs for the next 2-5 years

Agenda Item 5: Review of the status of SADIS payment for the current year (2015) invoices and depreciated assets

Agenda Item 6: Amendments to Annexes to the Agreement on the Sharing of Costs of the Satellite Distribution System relating to Air Navigation

Agenda Item 7: Future work and arrangements for the SCRAG/17 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% of the total assessments, which results in the nomination of

only one SCRAG members 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 59 States. Three 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 58 other States receiving the SADIS service had not yet acceded to the SADIS Agreement. Of these States, 31 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 First Meeting of the Meteorological Panel (METP) Working Group on Meteorological Operations Group (WG-MOG) (METP-WG/MOG/1, London, 8 to 11 September 2015) provided by the Rapporteur of the METP-WG/MOG.

2.2 In accordance with Conclusion 1/3 of METP-WG/MOG/1, 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 First Meeting to SCRAG, that the operational efficacy of the SADIS had continued to be satisfactory, meeting all operational requirements since the SADISOPSG/19 Meeting (London, 27 to 29 May 2014).

2.3 The Group noted Conclusion 1/1 of METP-WG/MOG/1 on the revised methodology for presenting concatenated WAFS GRIB2 data to Secure SADIS FTP. The Rapporteur of the WG/MOG notified the SCRAG that specifically, the files should only be presented to the “GRIB2” folders if a) all required GRIB2 bulletins have been received; or b) if the specified cut-off time threshold has been reached.

2.4 The Group noted Conclusion 1/8 of the update of the SADIS Gateway Operations. The Rapporteur of the WG/MOG notified the SCRAG that the SADIS Gateway Provider, in coordination with the SADIS Contract Manager, publish and implement Version 5 of the SADIS Gateway Operations Guide and review the guide on an annual basis and if required update and present for approval to the METP-WG/MOG.

2.5 The Group noted that the information has effectively been forwarded to the SCRAG Chairperson.

**AGENDA ITEM 3: REVIEW OF ACTUAL SADIS COSTS AND COST SHARES FOR THE PERIOD
1 JANUARY TO 31 DECEMBER 2014**

Review of the 2014 Actual SADIS Costs

3.1 The Group reviewed the actual costs of providing the SADIS services in the year 2014. These actual costs are presented in Appendix E and total £677 334. A summary of these costs is presented in Table 1.

**TABLE 1
SUMMARY OF ACTUAL SADIS COSTS
FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2014**

Cost Item	Actual Costs (UK £)
UK Meteorological Office	348 699
UK NATS Gateway	284 231
UK administrative costs	4 066
Sub-total UK	636 996
ICAO support services costs	40 338
TOTAL	677 334

3.2 The Group requested and it was agreed that future SCRAG reports will contain a breakdown of the NATS Gateway Costs (see Appendix F-2, note O). This will include a breakdown of NATS Gateway staff cost that is allocated to SADIS services.

Review of the 2014 Actual SADIS Cost Shares

3.3 The Group noted that two States, Iraq and Slovenia, which were not assessed for the year 2014 by the SCRAG/14 Meeting, are included in the calculation of the actual cost shares for 2014 considering that they received the SADIS service for a full year. Consequently, actual cost share for both Iraq and Slovenia was calculated based on 12 full months of service in 2014.

3.4 The Group noted that one State, Norway, which was assessed for the year 2014 by the SCRAG/14 Meeting, did not receive service throughout the 2014 year. As a result, Norway's share of 2014 costs was determined to be zero.

3.5 One State, Saudi Arabia, which was assessed for the year 2014 by the SCRAG/14 Meeting, had its services withdrawn on 28 January 2014 and then reinstated on 29 September 2014. Consequently, its share of the actual costs for 2014 is calculated based on 3 full months of service in 2014.

3.6 One State, Sri Lanka, which was assessed for the year 2014 by the SCRAG/14 Meeting, did not have a serviceable system throughout 2014. Consequently, a zero cost share for 2014 was attributed to Sri Lanka since no service was received throughout the 2014 year.

3.7 The Group determined the actual cost shares for the period 1 January to 31 December 2014 to 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 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 2014, 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.

3.8 The Group noted that the adjustment for 2014, which is the combination of the difference between the 2014 actual costs and the 2014 estimated costs approved by the SCRAG/14 Meeting. The Group formulated the following Conclusion:

Conclusion 16/1 -

The actual cost shares for 2014 as shown in Appendix E to the SCRAG/16 Report for the States participating in the SCAR Arrangement are approved by the SCRAG/16 Meeting, with consequential adjustments to be made by the United Kingdom in its billing of these States for 2016.

3.9 The Group received information from the observer from the United Kingdom on the status of payment of the cost shares of 2014 as at 1 October 2015. It noted that a total amount of £662 881 was collected for 2014 (see Appendix G – Table 1), representing 97.1% of the original amount billed for 2014 as approved by the SCRAG/14 Meeting. It also noted that an amount of £2 938 was collected for years prior to 2014 (see Appendix G – Table 2).

3.10 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.

3.11 Having noted the information in Table 1 and paragraphs 3.3 to 3.10 above, the Group agreed that the over-recovery of SADIS cost shares for the year 2014 amount to £86 192 as shown in Table 2. The over-recovery of 2014 is the amount subject to collection for 2014 (£579 627), less the amounts collected for 2014 (£662 881) and less the amounts collected for years prior to 2014 (£2 938). The Group formulated the following Conclusions:

Conclusion 16/2 -

An over-recovery, amounting to £86 192 of the SADIS cost shares for the year 2014 will be taken into account in the calculation of the SADIS cost shares for the year 2016, in accordance with Article XI, paragraph 4 of the SADIS Agreement.

**TABLE 2
OVER-RECOVERY FOR 2014**

		(UK £)	References
(1)	Actual costs for 2014	677 334	Table 1
(2)	Over-recovery for 2012	-97 707	SCRAG/14 Report, Table 2
(3)	Subject to collection for 2014	579 627	(1) + (2)
(4)	Collected from States for 2014 (as at 1 December 2015)	- 662 881	Appendix G – Table 1
(5)	Collected from States for years prior to 2014 (as at 1 December 2015)	- 2 938	Appendix G – Table 2
(6)	Over-recovery for 2014 (to be subtracted from the assessments for 2016)	-86 192	(3) + (4) + (5)

AGENDA ITEM 4: REVIEW OF ESTIMATED SADIS COSTS AND COST SHARES FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2016 AND ESTIMATED COSTS FOR THE NEXT 2-5 YEARS

Review of the 2016 Estimated SADIS Costs

4.1 The Group reviewed the cost estimates for providing the SADIS services in the year 2016.

4.2 The cost estimates for 2016 are detailed in Appendix F and total £677 795. A summary of these costs is presented in Table 3.

**TABLE 3
SUMMARY OF ESTIMATED SADIS COSTS
FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2016**

Cost Item	Estimated Costs (UK £)
UK Meteorological Office	296 195
UK NATS Gateway	337 708
UK CAA administrative costs	4 000
Sub-total UK	637 903
ICAO support services costs	39 892
TOTAL	677 795

4.3 The Group expressed their concern with regards to the estimated 2016 figures for ICAO METP-WG/MOG support. The Group was of the opinion that the 2016 estimates did not reflect the proportion of the reduced support received by ICAO under the new Meteorology Panel structure. It was agreed that the 2016 estimates not be adjusted on the basis of the SCRAG discussions, but that the 2015 actual costs, to be presented to in the SCRAG/17 meeting, fairly reflect the support services provided in 2015.

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 2016. The calculation of the amount to be assessed is presented in Table 4.

**TABLE 4
AMOUNT TO BE ASSESSED UNDER THE SADIS AGREEMENT FOR 2016**

		(UK £)	References
(1)	Over-recovery for 2014	-86 192	Table 2
(2)	Estimated costs for 2016	677 795	Table 3
(3)	Amount to be assessed for 2016	591 603	(1) + (2)

4.5 The Group determined the cost shares for the period 1 January to 31 December 2016 to 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 2014, in accordance with Article XI, paragraph 3 of the SADIS Agreement.

4.6 The Group noted that one State, Indonesia, who had the service withdrawn on 28 January 2015, had the service reinstated on May 2015, and is therefore included in the calculation of the assessment of cost shares for 2016.

4.7 The cost share in percentage terms and the share in £ sterling, including the share of over-recovery for 2014, to be borne by each State, are shown in Appendix H. Appendix I shows the amounts to be billed to each State in 2016, corresponding to the adjustment for 2014 (Appendix E), plus the assessment for 2016 (Appendix H), less any deduction of unused credit balances from previous years. The Group formulated the following Conclusion:

Conclusion 16/3 -

The estimated cost shares for 2016 as shown in Appendix H to the SCRAG/16 Report for each State participating in the SCAR Arrangement are approved by the SCRAG/16 Meeting for collection by the United Kingdom. The Secretariat will place the tables in the SCRAG web page.

Cost estimates for the years 2017 to 2019

4.8 The Group considered the estimates provided by the United Kingdom (Appendix F) and summarised in Table 5 of providing the SADIS services for the years 2017 to 2019 as well as the estimates for the United Kingdom administrative costs and the costs of ICAO support services.

**TABLE 5
SUMMARY OF ESTIMATED SADIS COSTS
FOR THE YEARS 2017, 2018 AND 2019***

Cost Item	Estimated Costs 2017 (UK £)	Estimated Costs 2018 (UK £)	Estimated Costs 2019 (UK £)
UK Meteorological Office	229 108	229 108	229 108
UK NATS Gateway	346 892	351 634	355 401
UK CAA administrative costs	4 000	4 000	4 000
Sub-total UK	580 000	584 742	588 509
ICAO support services costs	39 892	39 892	39 892
TOTAL	619 892	624 634	628 401

* Estimates based on 2015 prices.

4.9 The Provider State expressed concern about the significant 2014 adjustment that will impact 2016 billing (Appendix I-2, column 2). The Group agreed that billing process will be reviewed and alternative processes may be proposed to stabilize the impact of annual adjustments. Consequently during the meeting of the METP-WG/MOG/2, (tentatively scheduled for the week of 13-17 June 2016, with the SCRAG issue to be discussed on the afternoon of 14 June 2016), an additional SCRAG meeting will review this specific issue.

AGENDA ITEM 5: REVIEW OF THE STATUS OF SADIS PAYMENTS FOR THE CURRENT YEAR (2015) INVOICES AND DEPRECIATED ASSETS

5.1 The Group noted the information presented by the United Kingdom regarding the depreciated assets as at 31 December 2014 (see Appendix C) and approved the depreciation charges applicable from 2015 to 2019 inclusive.

5.2 The Group reviewed WP/13 on the status of payment for the current (2015) year, presented by the United Kingdom.

5.3 The Group formulated the following Conclusion:

Conclusion 16/4-

The Group agreed that the SADIS Provider be invited to withdraw access to SADIS 2G and/or secure SADIS FTP for those States who, as at 1200 UTC on 26 January 2016, have cumulative outstanding payments over GBP 100 due for any invoice dated 2015 or earlier.

AGENDA ITEM 6: AMENDMENTS TO ANNEXES TO THE AGREEMENT ON THE SHARING OF COSTS OF THE SATELLITE DISTRIBUTION SYSTEM 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 16/5 -

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/16 Report.

AGENDA ITEM 7: FUTURE WORK AND ARRANGEMENTS FOR THE SCRAG/17 MEETING

7.1 The Group agreed that, subject to confirmation, its Seventeenth Meeting should be held at in Toulouse, France, on the 8 November, 2016.

AGENDA ITEM 8: OTHER BUSINESS

8.1 The Group was informed of the status of the Meteorology Panel (METP) establishment and the formation of the Working Group on MET Operations Groups (WG-MOG), which was one of the four working groups formed under the METP. As the work of the SADISOPSG was integrated into the structure of the METP through the work plan of the METP-WG/MOG, the SADISOPSG was

disbanded on 17 June 2015. The Group was informed that this change may possibly require text amendments to the Agreement.

8.2 The Group noted that following the withdrawal of the SADIS 2G, which will take effect at 1200 UTC on 31 July 2016, the “Satellite” component of the SADIS (Satellite Distribution System for Information Relating to Air Navigation) acronym, will require a revised definition to more accurately reflect the distribution method. The Group was informed that this issue was addressed by the METP-WG/MOG/1 Meeting, on 8-11 September 2015, in Gatwick, UK. Agreement was reached that, effective 1 August 2016; the SADIS acronym will refer to “Secure Aviation Data Information Service”. The Group was informed that once this change is in effect, amendments to the text of the Agreement may be required.

8.3 The Group expressed its appreciation to the UK CAA Offices in London for their hospitality and excellent support received during the meeting.

APPENDIX A

LIST OF PARTICIPANTS

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APPENDIX B

LIST OF SCRAG/16 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/1 Meeting	Rapporteur, METP-WG/MOG
4	3	2014 ICAO actual SADIS administrative costs	Secretariat
5	3	2014 actual SADIS costs	United Kingdom
6	3 & 4	Status of payments for the year 2014	United Kingdom
7	3	Summary of actual costs and cost shares for the year 2014	Secretariat
8	5	Depreciated assets: SADIS costs	United Kingdom
9	4	2016 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 2016	Secretariat
12	6	Amendment to Annex II, SADIS Inventory, to the SADIS Agreement	Secretariat
13	5	Status of payments for the current (2015) year	United Kingdom

APPENDIX C

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

(1) Inventory of Assets: 2015	(2) Original Value	(3) Depreciated charges in 2015	(4) Total accumulated depreciation	(5) Net depreciated value at end of 2015
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
Total UKMO	£1,236,185	£0	£1,236,185	£0
SADIS Gateway	£227,462	£0	£227,462	£0
SADIS Gateway Mid-life upgrade	£187,330	£37,466	£37,466	£149,864
SADIS Uplink replacement hardware	£28,220	£21,165	£21,165	£7,055

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APPENDIX D

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	
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.

APPENDIX D (cont'd)

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	
Iran (Islamic Republic of) *	
Iraq	
Ireland	
Kenya	
Lao People's Democratic Republic *	X
Libya	
Malawi	X
Maldives	
Mali	X
Malta	
Mauritania	X
Mozambique	X
Myanmar *	X
Namibia	
Nepal	X
Niger	X
Nigeria	
Qatar	
Republic of South Sudan	X
Rwanda	X
Sao Tome and Principe *	X
Saudi Arabia	
Serbia	
Seychelles	
Sierra Leone *	X
Somalia	X
South Africa	
Sri Lanka *	
Sudan	X
Swaziland	
Syrian Arab Republic *	
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.

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APPENDIX E

**ACTUAL COST SHARES FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2014*
AND ADJUSTMENT FOR 2014**

STATES	2014 Available Tonne-Kilometres in Scheduled Services (000)	Percentage Cost Share	Share of 2014 Actual Costs (£ Sterling)	Share of 2014 Estimated Costs (SCRAG/14) (£ Sterling)	Adjustment for 2014 (£ Sterling)
Albania	25 946	0.004%	28.56	442.53	- 413.97
Algeria	831 105	0.135%	914.70	1 022.23	- 107.53
Armenia (note 6)	11 204	0.002%	12.33	124.33	- 112.00
Australia	22 427 773	3.644%	24 683.60	33 777.87	- 9 094.27
Austria	3 596 519	0.584%	3 958.26	4 510.09	- 551.83
Azerbaijan	569 042	0.092%	626.28	638.52	- 12.24
Bahrain	2 044 750	0.332%	2 250.41	3 733.42	- 1 483.01
Belgium	5 373 696	0.873%	5 914.19	5 179.43	734.76
Bosnia and Herzegovina	2 065	0.000%	2.27	22.90	- 20.63
Botswana	39 765	0.006%	43.76	69.13	- 25.37
Bulgaria	177 290	0.029%	195.12	235.57	- 40.45
Cameroon	77 600	0.013%	85.41	108.59	- 23.18
Cape Verde	163 830	0.027%	180.31	260.69	- 80.38
China: - Beijing	103 530 411	16.822%	113 943.69	124 472.30	- 10 528.61
- Hong Kong	31 435 560	5.108%	34 597.41	41 618.01	- 7 020.60
- Macau	585 418	0.095%	644.30	580.34	63.96
Congo	82 291	0.013%	90.57	55.67	34.90
Côte d'Ivoire	55 298	0.009%	60.86	12.24	48.62
Croatia	185 078	0.030%	203.69	291.50	- 87.81
Cyprus	156 463	0.025%	172.20	470.81	- 298.61
Czech Republic	1 208 373	0.196%	1 329.91	1 070.09	259.82
Democratic People's Republic of Korea	86 883	0.014%	95.62	46.80	48.82
Denmark	3 374 886	0.548%	3 714.34	3 317.95	396.39
Egypt	4 403 286	0.715%	4 846.18	5 942.00	- 1 095.82
Estonia	83 281	0.014%	91.66	166.92	- 75.26
Finland	4 246 179	0.690%	4 673.27	5 679.92	- 1 006.65
France	31 799 791	5.167%	34 998.27	40 035.77	- 5 037.50
Gabon (note 6)	644	0.000%	0.71	3.54	- 2.83
Georgia	73 323	0.012%	80.70	84.42	- 3.72
Germany	39 111 896	6.355%	43 045.84	57 052.12	- 14 006.28
Ghana	29 747	0.005%	32.74	29.86	2.88
Greece	1 086 742	0.177%	1 196.05	1 406.26	- 210.21
Hungary	2 620 947	0.426%	2 884.57	2 894.18	- 9.61
Iceland	1 289 017	0.209%	1 418.67	1 440.76	- 22.09
India	18 255 374	2.966%	20 091.53	24 052.95	- 3 961.42
Indonesia	12 936 436	2.102%	14 237.61	17 834.13	- 3 596.52
Iraq (note 1)	107 375	0.017%	118.17	0.00	118.17
Ireland	13 922 131	2.262%	15 322.44	18 574.97	- 3 252.53
Israel	4 188 245	0.681%	4 609.51	6 026.17	- 1 416.66
Italy	5 819 474	0.946%	6 404.81	9 465.04	- 3 060.23
Jordan	1 691 384	0.275%	1 861.51	2 538.82	- 677.31
Kazakhstan	1 759 706	0.286%	1 936.70	1 843.25	93.45
Kenya	2 056 987	0.334%	2 263.88	3 209.69	- 945.81
Kuwait	1 743 334	0.283%	1 918.68	2 534.02	- 615.34
Latvia	406 829	0.066%	447.75	727.27	- 279.52
Libya	800 132	0.130%	880.61	366.38	514.23
Lithuania	75 272	0.012%	82.84	9.04	73.80

APPENDIX E (cont'd)
ACTUAL COST SHARES FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2014*
AND ADJUSTMENT FOR 2014

STATES	2014 Available Tonne-Kilometres in Scheduled Services (000)	Percentage Cost Share	Share of 2014 Actual Costs (£ Sterling)	Share of 2014 Estimated Costs (SCRAG/14) (£ Sterling)	Adjustment for 2014 (£ Sterling)
Maldives (note 6)	1 399	0.000%	1.54	1.81	- 0.27
Malta	366 872	0.060%	403.77	482.03	- 78.26
Morocco	2 623 392	0.426%	2 887.26	3 046.92	- 159.66
Namibia	298 297	0.048%	328.30	460.41	- 132.11
Netherlands	20 591 685	3.346%	22 662.83	28 780.87	- 6 118.04
Nigeria	730 782	0.119%	804.29	1 025.72	- 221.43
Norway (note 2)	0	0.000%	0.00	3 820.67	- 3 820.67
Oman	1 868 880	0.304%	2 056.86	2 303.05	- 246.19
Pakistan	2 682 599	0.436%	2 952.42	4 426.80	- 1 474.38
Poland	1 291 759	0.210%	1 421.69	1 791.84	- 370.15
Portugal	5 201 464	0.845%	5 724.64	7 134.66	- 1 410.02
Qatar	24 213 041	3.934%	26 648.43	26 729.20	- 80.77
Republic of Moldova	151 174	0.025%	166.38	144.33	22.05
Romania	618 664	0.101%	680.89	991.01	- 310.12
Russian Federation	31 229 980	5.074%	34 371.15	39 994.48	- 5 623.33
Saudi Arabia (note 3)	3 352 671	0.545%	3 689.89	16 089.15	- 12 399.26
Senegal	39 992	0.006%	44.01	119.07	- 75.06
Serbia	318 126	0.052%	350.12	266.92	83.20
Seychelles	229 090	0.037%	252.13	78.69	173.44
Slovakia	4 121	0.001%	4.54	6.03	- 1.49
Slovenia (note 4)	140 178	0.023%	154.28	0.00	154.28
South Africa	6 333 349	1.029%	6 970.37	9 356.60	- 2 386.23
Spain	13 793 088	2.241%	15 180.42	19 012.89	- 3 832.47
Sri Lanka (note 5)	0	0.000%	0.00	3 417.58	- 3 417.58
Swaziland (note 6)	2 074	0.000%	2.28	2.84	- 0.56
Sweden	2 965 809	0.482%	3 264.12	2 915.77	348.35
Switzerland	9 026 318	1.467%	9 934.20	12 176.86	- 2 242.66
Thailand	16 426 584	2.669%	18 078.80	20 974.01	- 2 895.21
The former Yugoslav Republic of Macedonia (note 6)	39 508	0.006%	43.48	49.49	- 6.01
Tunisia	902 108	0.147%	992.84	1 052.53	- 59.69
Turkey	24 956 273	4.055%	27 466.42	24 875.31	2 591.11
Ukraine	1 128 175	0.183%	1 241.65	2 502.61	- 1 260.96
United Arab Emirates	68 437 664	11.120%	75 321.25	73 252.78	2 068.47
United Kingdom	43 903 233	7.134%	48 319.09	60 658.08	- 12 338.99
Uzbekistan	1 274 496	0.207%	1 402.69	1 969.84	- 567.15
Viet Nam	5 568 735	0.905%	6 128.85	7 023.56	- 894.71
Zimbabwe	172 300	0.028%	189.63	150.10	39.53
TOTAL	615 432 658	100.000%	677 334.00	801 063.00	- 123 729.00

* Excludes Least Developed Countries exempted.

Note 1: Considering that Iraq received the service throughout the entire 2014 year and had not been assessed, its share of the 2014 actual costs was calculated based on 12 months of service.

Note 2: Considering that Norway did not receive the service throughout the entire 2014 year, its share of actual was determined to be zero.

Note 3: Considering that Saudi Arabia had their service withdrawn on 28 January 2014 and then reinstated on 29 September 2014, its share of the 2014 actual costs was calculated based on 3 full months of service.

Note 4: Considering that Slovenia received the service throughout the entire 2014 year and had not been assessed, its share of the 2014 actual costs was calculated based on 12 months of service.

Note 5: Considering that the Sri Lanka system was unserviceable throughout 2014, its share of estimated costs for 2014 was adjusted to reflect no service for the entire 12 months of 2014.

Note 6: We did not receive the number of ATKs in 2014 for Armenia, Gabon, 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.

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APPENDIX F

TABLE 1: UKMO Cost and manpower resource projections until year 2019 (at 2015 prices)

INVENTORY REF:	Note	DESCRIPTION	Actual 2014	FOO 2015	Est 2016	Est 2017	Est 2018	Est 2019
1 UK MET OFFICE COSTS								
1. Equipment								
Principally procured for SADIS								
comms between Whitehill & Met Office	a	SADIS 2G	5,816	5,816	3,393	0	0	0
comms link SADIS Gateway & Met Office	b	SADIS 2G	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	Secure SADIS FTP	7,380	4,190	1,000	1,000	1,000	1,000
message switch (2G)		SADIS 2G	5,461	3,131	800	0	0	0
internet bandwidth (FTP)		FTP	6,512	7,135	10,250	10,250	10,250	10,250
FTP equipment running costs		FTP	18,247	19,024	19,024	19,024	19,024	19,024
Service Desk Equipment Costs	d	Service Desk eqpt	12,751	12,750	12,750	12,750	12,750	12,750
Serial Comms Costs and maintenance		Serial Comms	10,601	11,000	11,000	11,000	11,000	11,000
		sub total	70,108	66,386	61,557	57,364	57,364	57,364
2. Procured Services								
space segment annual lease	e	Satellite Segment	54,660	54,660	25,295	0	0	0
annual maintenance	f	2G Maintenance	35,172	33,670	20,411	0	0	0
		2G Facilities Management	6,300	6,300	3,675	0	0	0
		IT Hall Space	14,901	14,500	8,458	4,000	4,000	4,000
	g	ad hoc maintenance	0	5,000	5,000	5,000	5,000	5,000
		sub total	111,033	114,130	62,839	9,000	9,000	9,000
3. Annual Staff Requirements								
Help Desk	h	Help Desk 0.3%	5,916	6,000	6,000	6,000	6,000	6,000
		Technical Team Leader 3.5%	12,297	12,297	12,297	12,297	12,297	12,297
		Network Systems Supervisor 7%	24,593	24,593	24,593	24,593	24,593	24,593
Additional Support								
Systems Integration Team	i	Network Computer Engineer	4,866	5,292	5,292	5,292	5,292	5,292
Message Switching Manager		Message Switching Manager	5,214	5,670	5,670	5,670	5,670	5,670
Administrator		Executive Officer	55,612	62,850	62,850	62,850	62,850	62,850
International Aviation Management		Aviation Manager	12,805	7,290	7,290	7,290	7,290	7,290
Data Traffic		Communications Engineer	1,738	1,890	1,890	1,890	1,890	1,890
Contract Procurement and Management		Senior Procurement Officer	1,390	1,512	1,512	1,512	1,512	1,512
Message Switching Team		Technical Officer	5,214	5,670	5,670	5,670	5,670	5,670
Invoice Administration		Finance Officer & Business Acct	13,354	14,850	14,850	14,850	14,850	14,850
SADIS 2G Satellite decommissioning	j	Resource costs	0	0	2,000	0	0	0
Travel Costs	k	SADISOPSG, METP meetings & SC	1,990	1,000	1,000	1,000	1,000	1,000
		sub total	144,989	148,914	150,914	148,914	148,914	148,914
		TOTAL	326,130	329,430	275,310	215,278	215,278	215,278
Cost of Depreciated Capital								
	l	SADIS 2G	8,712	0	0	0	0	0
		FTP enhancements	0	0	0	0	0	0
		SADIS 2G CP6000 replacement (witt	0	21,165	7,055	0	0	0
		sub total	334,842	350,595	282,365	215,278	215,278	215,278
Administrative costs	m	Cost of Capital	13,630	13,630	13,630	13,630	13,630	13,630
	n	Admin charges	227	200	200	200	200	200
		Total UKMO Costs	348,699	364,425	296,195	229,108	229,108	229,108

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APPENDIX F (cont'd)

TABLE 2: NATS and other SADIS Cost Projections until 2019 (at 2015 prices)

INVENTORY REF:	Note	DESCRIPTION	Actual 2014	FOO 2015	Est 2016	Est 2017	Est 2018	Est 2019
2 NATS Gateway Costs	o							
Staff Costs								
Operational Staff		Air Traffic Services Asst.	273,643	258,907	266,738	276,300	282,672	288,103
Engineering Staff		Maintenance Engineer	9,125	2,349	9,660	10,009	10,242	10,440
Engineering Staff		Asset Management	N/A	N/A	N/A	N/A	N/A	N/A
Administration Staff		Administration Officer	431	274	1,122	1,161	1,188	1,211
		sub total	283,199	261,530	277,520	287,470	294,102	299,754
Systems Maintenance	p	IP Comms link to UKMO	0	N/A	N/A	N/A	N/A	N/A
		X.25 Comms link to UKMO	0	N/A	N/A	N/A	N/A	N/A
		Systems Maintenance	0	N/A	N/A	N/A	N/A	N/A
		Communications	208	822	1,567	1,598	1,630	1,662
		Maintenance	0	8,987	9,169	9,347	9,534	9,723
		T&RE	824	2,815	3,200	4,421	4,509	4,599
Sadis Gateway Upgrade (Capital Project)	q							
Cost of Depreciated Capital		Capital Investments	0	37,466	37,466	37,466	37,466	37,466
		Interest at 5.88%	0	10,983	8,786	6,590	4,393	2,197
Sadis Backup enhancement		procurement & Installation	0	0	0	0	0	0
		annual support costs	0	0	0	0	0	0
Total NATS Gateway Costs			284,231	322,603	337,708	346,892	351,634	355,401
CAA Administration Costs			4,066	4,000	4,000	4,000	4,000	4,000
ICAO Administration Costs			40,338	40,338	39,892	39,892	39,892	39,892
TOTAL SADIS COSTS			677,334	731,366	677,795	619,892	624,634	628,401

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APPENDIX G
TABLE 1
STATUS OF PAYMENT OF THE ASSESSMENT FOR 2014
AS AT 1 OCTOBER 2015
(£ Sterling)

STATES	Total amount billed for 2014 (SCRAG/14 Report, Appendix I)	Amount Collected as at 1 October 2015	Administrative Charges Applied	Application of credit balance (or part of)	Unpaid amount (excess paid) as at 1 October 2015
Albania	801.30	801.30			0.00
Algeria	56.92	56.92	9.55		0.00
Armenia	- 45.72	- 45.72			0.00
Australia	41 731.72	41 731.72			0.00
Austria	2 514.90	2 514.90	7.00		0.00
Azerbaijan	742.20	742.20			0.00
Bahrain	1 024.93	1 024.93	12.00		0.00
Belgium	3 822.44	3 822.44	7.00		0.00
Bosnia and Herzegovina	- 68.79				- 68.79
Botswana	78.16	78.16			0.00
Bulgaria	132.61	132.61			0.00
Cameroon	0.00				0.00
Cape Verde	282.75	282.75	0.02		0.00
China: - Beijing	103 961.83	103 961.83	15.00		0.00
- Hong Kong	42 057.32	42 057.32	27.00		0.00
- Macau	449.90	449.90			0.00
Congo	- 49.77	- 49.77			0.00
Côte d'Ivoire	- 246.75	- 246.75			0.00
Croatia	216.44	216.44	7.00		0.00
Cyprus	- 283.66				- 283.66
Czech Republic	74.35	74.35	1.00		0.00
Democratic People's Republic of Korea	62.10	62.10			0.00
Denmark	3 355.72	3 355.72			0.00
Egypt	3 955.41	3 955.41	25.00		0.00
Estonia	163.48	163.48	7.00		0.00
Finland	4 128.75	4 128.75			0.00
France	31 344.36	31 344.36			0.00
Gabon	- 135.43	- 135.43			0.00
Georgia	- 131.68				- 131.68
Germany	39 003.28	39 003.28			0.00
Ghana	0.00				0.00
Greece	218.81	218.81	7.00		0.00
Hungary	2 959.28	2 959.28			0.00
Iceland	1 394.85	1 394.85			0.00
India	18 304.93	18 304.93			0.00
Indonesia	28 651.13	28 651.13			0.00
Iran (Islamic Republic of)	- 799.97				- 799.97
Ireland	12 853.32	12 853.32			0.00
Israel	5 291.15	5 291.15			0.00
Italy	5 317.79	5 317.79	7.00		0.00
Jordan	1 432.02	1 432.02			0.00
Kazakhstan	3 391.07	3 391.07			0.00
Kenya	2 645.29	2 645.29			0.00
Kuwait	1 897.73	1 897.73			0.00
Latvia	441.43	441.43	6.00		0.00
Libya	- 567.08				- 567.08

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APPENDIX G (cont'd)

TABLE 1 (cont'd)

STATUS OF PAYMENT OF THE ASSESSMENT FOR 2014

AS AT 1 OCTOBER 2015

(£ Sterling)

STATES	Total amount billed for 2014 (SCRAG/14 Report, Appendix I)	Amount Collected as at 1 October 2015	Administrative Charges Applied	Application of credit balance (or part of)	Unpaid amount (excess paid) as at 1 October 2015
Lithuania	- 393.78	- 393.78			0.00
Maldives	1.40	1.40			0.00
Malta	- 655.55	- 655.55			0.00
Morocco	- 899.88				- 899.88
Namibia	39.76				39.76
Netherlands	21 514.88	21 514.88			0.00
Nigeria	1 591.09	1 591.09	15.00		0.00
Norway (note 1)	3 354.66				3 354.66
Oman	2 994.10	2 994.10			0.00
Pakistan	3 987.37	3 987.37			0.00
Poland	1 012.47	1 012.47			0.00
Portugal	5 443.82	5 443.82			0.00
Qatar	26 122.05	26 122.05	15.00		0.00
Republic of Moldova	107.39	107.39	10.00		0.00
Romania	603.60	603.60	7.00		0.00
Russian Federation	39 868.34	39 868.34			0.00
Saudi Arabia (note 2)	15 891.28				15 891.28
Senegal	- 124.19	- 124.19			0.00
Serbia	176.29	176.29			0.00
Seychelles	- 208.61				- 208.61
Slovakia	7.22	7.22			0.00
South Africa	7 324.48	7 324.48	7.00		0.00
Spain	16 693.86	16 693.86			0.00
Sri Lanka (note 3)	3 467.52				3 467.52
Swaziland	2.24	2.24			0.00
Sweden	2 978.90	2 978.90			0.00
Switzerland	10 019.80	10 019.80			0.00
Syrian Arab Republic	- 349.08				- 349.08
Thailand	18 348.32	18 348.32			0.00
The former Yugoslav Republic of Macedonia	42.46	42.46			0.00
Tunisia	3.23	3.23			0.00
Turkey	28 186.16	28 186.16			0.00
Ukraine	2 278.43	2 278.43			0.00
United Arab Emirates	55 192.77	55 192.77	28.33		0.00
United Kingdom	46 739.16	46 739.16			0.00
Uzbekistan	1 624.96	1 624.96			0.00
Viet Nam	6 816.48	6 816.48	7.00		0.00
Zimbabwe	91.47	91.47			0.00
TOTAL	682 325.69	662 881.22	226.90	0.00	19 444.47

Note 1: Norway did not receive any service in 2014. As a result Norway's 2014 invoicing will be reversed.

Note 2: Amount unpaid, however only 3 months of service received whereas the billing reflects a full year of service. The 2014 billing for Saudi Arabia will be reduced by 12, 399.26 to reflect the revised amount of 3 492.02 outstanding (adjustment for 2012 of 1 764.55 and the 2014 assessment of 1 727.47).

Note 3: Sri Lanka did not have a serviceable system throughout 2014 and as a result, the 2014 invoice will be nullified.

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APPENDIX G (cont'd)

TABLE 2
STATUS OF PAYMENT OF BALANCES FOR YEARS PRIOR TO 2014
AS AT 1 OCTOBER 2015
(£ Sterling)

STATES	Balance due for years prior to 2014	Amount Collected as at 1 October 2015	Administrative Charges Applied	Application of credit balance (or part of)	Unpaid amount (excess paid) as at 1 October 2015
Armenia	- 1.79				- 1.79
Côte d'Ivoire	- 50.33				- 50.33
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
Jordan	2 938.31	2 938.31			0.00
Syrian Arab Republic	3 838.06				3 838.06
Turkmenistan	1 228.35				1 228.35
Zimbabwe	- 491.51				- 491.51
TOTAL	22 640.23	2 938.31	0.00	0.00	19 701.92

APPENDIX H
ESTIMATED COST SHARES AND ASSESSMENTS
FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2016 *

STATES	2014 Available Tonne-Kilometres in Scheduled Services (000)	Percentage Cost Share	Share of 2016 Estimated Costs (£ Sterling)	Share of Over-recovery for 2014 (£ Sterling)	Amount to be Assessed for 2016 (£ Sterling)
Albania	25 946	0.004%	28.01	- 3.56	24.45
Algeria	831 105	0.132%	897.19	- 114.09	783.10
Armenia	11 204	0.002%	12.09	- 1.54	10.55
Australia	22 427 773	3.572%	24 211.18	-3 078.82	21 132.36
Austria	3 596 519	0.573%	3 882.51	- 493.72	3 388.79
Azerbaijan	569 042	0.091%	614.29	- 78.12	536.17
Bahrain	2 044 750	0.326%	2 207.34	- 280.70	1 926.64
Belgium	5 373 696	0.856%	5 801.00	- 737.69	5 063.31
Bosnia and Herzegovina	2 065	0.000%	2.23	- 0.28	1.95
Botswana	39 765	0.006%	42.93	- 5.46	37.47
Bulgaria	177 290	0.028%	191.39	- 24.34	167.05
Cameroon	77 600	0.012%	83.77	- 10.65	73.12
Cape Verde	163 830	0.026%	176.86	- 22.49	154.37
China: - Beijing	103 530 411	16.489%	111 762.93	-14 212.37	97 550.56
- Hong Kong	31 435 560	5.007%	33 935.25	-4 315.39	29 619.86
- Macau	585 418	0.093%	631.97	- 80.36	551.61
Congo	82 291	0.013%	88.83	- 11.30	77.53
Côte d'Ivoire	55 298	0.009%	59.70	- 7.59	52.11
Croatia	185 078	0.029%	199.80	- 25.41	174.39
Cyprus	156 463	0.025%	168.90	- 21.48	147.42
Czech Republic	1 208 373	0.192%	1 304.46	- 165.88	1 138.58
Democratic People's Republic of Korea	86 883	0.014%	93.79	- 11.93	81.86
Denmark	3 374 886	0.538%	3 643.25	- 463.29	3 179.96
Egypt	4 403 286	0.701%	4 753.43	- 604.47	4 148.96
Estonia	83 281	0.013%	89.90	- 11.43	78.47
Finland	4 246 179	0.676%	4 583.83	- 582.90	4 000.93
France	31 799 791	5.065%	34 328.44	-4 365.39	29 963.05
Gabon	644	0.000%	0.70	- 0.09	0.61
Georgia	73 323	0.012%	79.15	- 10.07	69.08
Germany	39 111 896	6.229%	42 221.99	-5 369.17	36 852.82
Ghana	29 747	0.005%	32.11	- 4.08	28.03
Greece	1 086 742	0.173%	1 173.16	- 149.18	1 023.98
Hungary	2 620 947	0.417%	2 829.36	- 359.80	2 469.56
Iceland	1 289 017	0.205%	1 391.52	- 176.95	1 214.57
India	18 255 374	2.908%	19 707.00	-2 506.05	17 200.95
Indonesia	12 936 436	2.060%	13 965.11	-1 775.88	12 189.23
Iraq	107 375	0.017%	115.91	- 14.74	101.17
Ireland	13 922 131	2.217%	15 029.19	-1 911.19	13 118.00
Israel	4 188 245	0.667%	4 521.29	- 574.95	3 946.34
Italy	5 819 474	0.927%	6 282.23	- 798.88	5 483.35
Jordan	1 691 384	0.269%	1 825.88	- 232.19	1 593.69
Kazakhstan	1 759 706	0.280%	1 899.63	- 241.57	1 658.06
Kenya	2 056 987	0.328%	2 220.55	- 282.38	1 938.17
Kuwait	1 743 334	0.278%	1 881.96	- 239.32	1 642.64
Latvia	406 829	0.065%	439.18	- 55.85	383.33
Libya	800 132	0.127%	863.76	- 109.84	753.92

APPENDIX H (cont'd)
ESTIMATED COST SHARES AND ASSESSMENTS
FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2016 *

STATES	2014 Available Tonne-Kilometres in Scheduled Services (000)	Percentage Cost Share	Share of 2016 Estimated Costs (£ Sterling)	Share of Over-recovery for 2014 (£ Sterling)	Amount to be Assessed for 2016 (£ Sterling)
Lithuania	75 272	0.012%	81.26	- 10.33	70.93
Maldives	1 399	0.000%	1.51	- 0.19	1.32
Malta	366 872	0.058%	396.04	- 50.36	345.68
Morocco	2 623 392	0.418%	2 832.00	- 360.13	2 471.87
Namibia	298 297	0.048%	322.02	- 40.95	281.07
Netherlands	20 591 685	3.280%	22 229.09	-2 826.77	19 402.32
Nigeria	730 782	0.116%	788.89	- 100.32	688.57
Oman	1 868 880	0.298%	2 017.49	- 256.55	1 760.94
Pakistan	2 682 599	0.427%	2 895.91	- 368.26	2 527.65
Poland	1 291 759	0.206%	1 394.48	- 177.33	1 217.15
Portugal	5 201 464	0.828%	5 615.07	- 714.04	4 901.03
Qatar	24 213 041	3.856%	26 138.41	-3 323.90	22 814.51
Republic of Moldova	151 174	0.024%	163.20	- 20.75	142.45
Romania	618 664	0.099%	667.86	- 84.93	582.93
Russian Federation	31 229 980	4.974%	33 713.32	-4 287.16	29 426.16
Saudi Arabia	13 410 684	2.136%	14 477.07	-1 840.98	12 636.09
Senegal	39 992	0.006%	43.17	- 5.49	37.68
Serbia	318 126	0.051%	343.42	- 43.67	299.75
Seychelles	229 090	0.036%	247.31	- 31.45	215.86
Slovakia	4 121	0.001%	4.45	- 0.57	3.88
Slovenia	140 178	0.022%	151.32	- 19.24	132.08
South Africa	6 333 349	1.009%	6 836.96	- 869.42	5 967.54
Spain	13 793 088	2.197%	14 889.89	-1 893.48	12 996.41
Sri Lanka	2 377 554	0.379%	2 566.61	- 326.38	2 240.23
Swaziland	2 074	0.000%	2.24	- 0.28	1.96
Sweden	2 965 809	0.472%	3 201.64	- 407.14	2 794.50
Switzerland	9 026 318	1.438%	9 744.07	-1 239.11	8 504.96
Thailand	16 426 584	2.616%	17 732.79	-2 255.00	15 477.79
The former Yugoslav Republic of Macedonia	39 508	0.006%	42.65	- 5.42	37.23
Tunisia	902 108	0.144%	973.84	- 123.84	850.00
Turkey	24 956 273	3.975%	26 940.74	-3 425.93	23 514.81
Ukraine	1 128 175	0.180%	1 217.89	- 154.87	1 063.02
United Arab Emirates	68 437 664	10.900%	73 879.68	-9 394.93	64 484.75
United Kingdom	43 903 233	6.992%	47 394.37	-6 026.93	41 367.44
Uzbekistan	1 274 496	0.203%	1 375.84	- 174.96	1 200.88
Viet Nam	5 568 735	0.887%	6 011.55	- 764.46	5 247.09
Zimbabwe	172 300	0.027%	186.00	- 23.65	162.35
TOTAL	627 868 225	100.000%	677 795.00	-86 192.00	591 603.00

* Excludes Least Developed Countries exempted, States for which the access to SADIS is not operational and States which refused to accede to the SADIS Agreement.

I - 1
APPENDIX I
AMOUNTS TO BE BILLED
FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2016
(£ Sterling)

STATES	Adjustment for 2014 (Appendix E)	Assessment for 2016 (Attachment A)	Deduction of Unused Credit Balance from Previous Years	Total Amount to be Billed for 2016
Albania	- 413.97	24.45		- 389.52
Algeria	- 107.53	783.10		675.57
Armenia	- 112.00	10.55		- 101.45
Australia	- 9 094.27	21 132.36		12 038.09
Austria	- 551.83	3 388.79		2 836.96
Azerbaijan	- 12.24	536.17		523.93
Bahrain	- 1 483.01	1 926.64		443.63
Belgium	734.76	5 063.31		5 798.07
Bosnia and Herzegovina	- 20.63	1.95		- 18.68
Botswana	- 25.37	37.47		12.10
Bulgaria	- 40.45	167.05		126.60
Cameroon	- 23.18	73.12		49.94
Cape Verde	- 80.38	154.37		73.99
China: - Beijing	- 10 528.61	97 550.56		87 021.95
- Hong Kong	- 7 020.60	29 619.86		22 599.26
- Macau	63.96	551.61		615.57
Congo	34.90	77.53		112.43
Côte d'Ivoire	48.62	52.11		100.73
Croatia	- 87.81	174.39		86.58
Cyprus	- 298.61	147.42		- 151.19
Czech Republic	259.82	1 138.58		1 398.40
Democratic People's Republic of Korea	48.82	81.86		130.68
Denmark	396.39	3 179.96		3 576.35
Egypt	- 1 095.82	4 148.96		3 053.14
Estonia	- 75.26	78.47		3.21
Finland	- 1 006.65	4 000.93		2 994.28
France	- 5 037.50	29 963.05		24 925.55
Gabon	- 2.83	0.61		- 2.22
Georgia	- 3.72	69.08		65.36
Germany	- 14 006.28	36 852.82		22 846.54
Ghana	2.88	28.03		30.91
Greece	- 210.21	1 023.98		813.77
Hungary	- 9.61	2 469.56		2 459.95
Iceland	- 22.09	1 214.57		1 192.48
India	- 3 961.42	17 200.95		13 239.53
Indonesia	- 3 596.52	12 189.23		8 592.71
Iraq	118.17	101.17		219.34
Ireland	- 3 252.53	13 118.00		9 865.47
Israel	- 1 416.66	3 946.34		2 529.68
Italy	- 3 060.23	5 483.35		2 423.12
Jordan	- 677.31	1 593.69		916.38
Kazakhstan	93.45	1 658.06		1 751.51
Kenya	- 945.81	1 938.17		992.36
Kuwait	- 615.34	1 642.64		1 027.30
Latvia	- 279.52	383.33		103.81
Libya	514.23	753.92		1 268.15
Lithuania	73.80	70.93		144.73

APPENDIX I (cont'd)
AMOUNTS TO BE BILLED
FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2016
(£ Sterling)

STATES	Adjustment for 2014 (Appendix E)	Assessment for 2016 (Attachment A)	Deduction of Unused Credit Balance from Previous Years	Total Amount to be Billed for 2016
Maldives	- 0.27	1.32		1.05
Malta	- 78.26	345.68		267.42
Morocco	- 159.66	2 471.87		2 312.21
Namibia	- 132.11	281.07		148.96
Netherlands	- 6 118.04	19 402.32		13 284.28
Nigeria	- 221.43	688.57		467.14
Norway *	- 3 820.67	0.00	3 820.67	0.00
Oman	- 246.19	1 760.94		1 514.75
Pakistan	- 1 474.38	2 527.65		1 053.27
Poland	- 370.15	1 217.15		847.00
Portugal	- 1 410.02	4 901.03		3 491.01
Qatar	- 80.77	22 814.51		22 733.74
Republic of Moldova	22.05	142.45		164.50
Romania	- 310.12	582.93		272.81
Russian Federation	- 5 623.33	29 426.16		23 802.83
Saudi Arabia*	- 12 399.26	12 636.09	12 399.26	12 636.09
Senegal	- 75.06	37.68		- 37.38
Serbia	83.20	299.75		382.95
Seychelles	173.44	215.86		389.30
Slovakia	- 1.49	3.88		2.39
Slovenia	154.28	132.08		286.36
South Africa	- 2 386.23	5 967.54		3 581.31
Spain	- 3 832.47	12 996.41		9 163.94
Sri Lanka *	- 3 417.58	2 240.23	3 417.58	2 240.23
Swaziland	- 0.56	1.96		1.40
Sweden	348.35	2 794.50		3 142.85
Switzerland	- 2 242.66	8 504.96		6 262.30
Thailand	- 2 895.21	15 477.79		12 582.58
The former Yugoslav Republic of Macedonia	- 6.01	37.23		31.22
Tunisia	- 59.69	850.00		790.31
Turkey	2 591.11	23 514.81		26 105.92
Ukraine	- 1 260.96	1 063.02		- 197.94
United Arab Emirates	2 068.47	64 484.75		66 553.22
United Kingdom	- 12 338.99	41 367.44		29 028.45
Uzbekistan	- 567.15	1 200.88		633.73
Viet Nam	- 894.71	5 247.09		4 352.38
Zimbabwe	39.53	162.35		201.88
TOTAL	- 123 729.00	591 603.00	19 637.51	487 511.51

* The 2014 billing for both Norway and Sri Lanka will be reversed since no services were received by either State throughout 2014.

** The Saudi Arabia's billing for 2014 reflected 12 full months of service however only 3 months of services were received (refer to note 2, Appendix G). The above credit of 12 399.26 will adjust the outstanding 2014 billing balance as opposed to impacting 2016 billing.

SADIS INVENTORY

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

~~(2014-2015)~~2015-2016)

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.

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

c) At the uplink site (Whitehill);

1) Units and services leased from ~~Vodafone Cable and Wireless Communications Ltd.~~ 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

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).

d) Dual contingent communication links (utilising WMO TCP/IP sockets protocol) between SADIS Gateway and Met Office in support of 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 16 Mbit/sec bursting to 24 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 ~~512~~ 1024 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 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.

1 budgeted cost for providing MetSwitch service during the fiscal year ~~2014/2015~~2015/2016.

2 budgeted cost for providing MetSwitch service during the fiscal year ~~2014/2015~~2015/2016.

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
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.

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 CP70006000, and 1 switch	2*
4.3	CP70006000 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	Corobor comparator software and PC 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.

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
- 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.

24-hour Weather Desk support

Skill

- | | |
|--|---------------------|
| 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.

24-hour IT Operations support

Skill

- | | |
|--|----------------------|
| 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.

Normal working hours support

Skill

- | | |
|-------------------------------------|--------------------|
| 1. Change and problem manager (CPM) | Process Specialist |
|-------------------------------------|--------------------|

ii) Additional support

Day support

Resource

- | | |
|--|---|
| 1. Systems integration team | 14 staff-days of network computer engineer |
| 2. Message Switching Manager | 15 staff-days of MSS manager |
| 3. Administrator | 150 160 staff-days of executive officer |
| 4. International aviation management | 153 0 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 610 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).

24-hour support

Resource

- | | | |
|----|---------------------------------------|--|
| 1. | <u>Air Traffic Services Assistant</u> | 523 <u>576</u> staff-days per annum |
| 2. | <u>Maintenance Engineer</u> | 22 <u>24</u> staff-days per annum |

Day Support

Resource

- | | | |
|----|--|--|
| 3. | SADIS a <u>Administration support</u> | 50 <u>10</u> staff-days per annum |
| 4. | Engineering (including on-call) | 15 staff-days per annum |

C. Bought-in services

Additional support and maintenance agreements with third parties are in place to provide third line support of the SADIS 2G service.