



SCRAG/2 - REPORT

INTERNATIONAL CIVIL AVIATION ORGANIZATION

**REPORT OF
THE SECOND MEETING OF THE SADIS COST RECOVERY
ADMINISTRATIVE GROUP
(SCRAG/2)**

(Paris, 13 and 14 November 2001)

THE DESIGNATIONS AND THE PRESENTATION OF MATERIAL IN THIS PUBLICATION DO NOT IMPLY THE EXPRESSION OF ANY OPINION WHATSOEVER ON THE PART OF ICAO CONCERNING THE LEGAL STATUS OF ANY COUNTRY, TERRITORY, CITY OR AREA OF ITS AUTHORITIES, OR CONCERNING THE DELIMITATION OF ITS FRONTIERS OR BOUNDARIES.

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INTRODUCTION

Place and duration

i.1 The Second Meeting of the SADIS Cost Recovery Administrative Group (SCRAG) was held at the European and North Atlantic (EUR/NAT) Office of ICAO in Paris from 13 to 14 November 2001.

Attendance

i.2 The Meeting was attended by two of the five Members of the Group as well as two of the three invited Observers. The list of participants is given in **Appendix A** and a list of working papers issued for the Meeting is at **Appendix B**.

Officers and Secretariat

i.3 **Mr. L. Wedbäck** from Sweden was Chairman of the Meeting. **Mr. J.C. Bugnet**, Chief, Joint Financing Section, ICAO Headquarters, Montreal, acted as Secretary of the Meeting, assisted by **Mr. B. Hellroth**, Regional Officer Meteorology/Aeronautical Information Services, of the European and North Atlantic Office of ICAO in Paris.

Terms of reference

i.4 The terms of reference of the SCRAG, as per Article VII of the Agreement on the Sharing of Costs of the Satellite Distribution System for Information relating to Air Navigation (SADIS Agreement) are as follows:

The 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.

Agenda

i.5 The following agenda was adopted:

Agenda Item 1: Issues related to the first year of implementation of the revised SADIS Agreement.

Agenda Item 2: Review of estimated SADIS costs and cost shares for the period 1 January to 31 December 2002.

Agenda Item 3: Amendment to Annex II, SADIS Inventory, to the Agreement on the Sharing of Costs of the Satellite Distribution System relating to Air Navigation.

Agenda Item 4: Future work and arrangements for SCRAG/3 Meeting.

Agenda Item 5: Other business.

AGENDA ITEM 1: ISSUES RELATED TO THE FIRST YEAR OF IMPLEMENTATION OF THE REVISED SADIS AGREEMENT

1.1 The Group received information from the Secretariat on the status of accession to the SADIS Agreement by the Parties as at 1 November 2001 (See **Appendix D**). It noted that 50 States had notified their accession and/or intention to accede to the Agreement, 8 had refused and 32 had not yet replied.

1.2 The Group received information from the observer from the United Kingdom on the status of payments of the cost shares as at 10 November 2001. It noted that 32 of 61 States which were assessed had paid their cost share (£297,996.62), representing 59.19% of the assessments (including the UK cost share).

1.3 The Group noted that, in accordance with the provisions of Article XIII of the SADIS Agreement, the SADIS service would be withdrawn as of 1 January 2002 to any Party receiving the SADIS service in 2001, from which the cost share has not been received by the United Kingdom. It noted that, due to the time required in the establishment of the SADIS cost sharing for 2001, which was the first year of implementation of the revised SADIS Agreement, the corresponding invoices were issued by the United Kingdom in July 2001. The Group was also informed that, due to the budgeting process in a number of States, some Parties and/or potential Parties to the Agreement were experiencing difficulties in getting the necessary appropriations before the end of 2001. However, after an in-depth discussion, bearing in mind that the States had been informed about the new provision by the ICAO State letter sent in March 2001, the Group decided not to extend the deadline for payment of the 2001 contribution.

1.4 In order to avoid any misunderstanding or dispute in the implementation of Article XIII of the SADIS Agreement, the Group was invited by the Secretariat to specify explicitly that any credit received from a Party to the SADIS Agreement would be used in payment of its eldest dues under this Agreement. As a result of its discussions, the Group adopted the following Conclusion:

Conclusion 2/1 -

Payments by Parties to the SADIS Agreement shall be credited to outstanding contributions beginning with the earliest.

AGENDA ITEM 2: REVIEW OF ESTIMATED SADIS COSTS AND COST SHARES FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2002

2.1 The Group reviewed the estimates provided by the United Kingdom of the costs for providing SADIS services in the year 2002. These cost estimates are presented in **Appendix E** and total £ 441,165. A summary of these costs is presented in **Table 1**.

TABLE 1
SUMMARY OF ESTIMATED SADIS COSTS
FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2002

Cost Item	Estimated Costs (UK £)
Amortization and interest	90 500
Annual cost excluding amortization and interest	312 665
<i>Sub-total UK Meteorological Office</i>	<i>403 165</i>
UK administrative costs	18 000
<i>Sub-total UK</i>	<i>421 165</i>
ICAO support services costs	20 000
TOTAL	441 165

2.2 The Group determined the cost share for the period 1 January to 31 December 2002 to be borne by the States parties to the SADIS Agreement which are not exempted because they are on the list of the Least Developed Countries or because their access to SADIS is not operational, on the basis of the available tonne-kilometers (ATKs) in scheduled services for 2000. The cost share in percentage terms and the share in £ sterling to be borne by each State are shown in **Appendix F**.

2.3 The Group then agreed that the United Kingdom, as the SADIS provider State, would proceed to bill each of the States party to the SADIS Agreement for the share attributable to it as shown in **Appendix F**. Accordingly the Group formulated the following Conclusion:

Conclusion 2/2 -

The estimated cost shares for 2002 as shown in Appendix F of the Report of the Second Meeting of SCRAG for each State party to the SADIS Agreement having been assessed by SCRAG are approved for collection by the United Kingdom as the SADIS provider State.

Depreciated assets

2.4 The Group noted the information presented by the UK regarding the depreciated assets as at 31 December 2001 (see **Appendix C**).

Cost estimates for the years 2003 to 2005

2.5 The Group considered the estimates provided by the United Kingdom (see **Appendix E**) and summarized in **Table 2** of UKMO costs of providing the SADIS services for the years 2003 to 2005 as well as estimates for the United Kingdom administrative costs and the costs of ICAO support services.

2.6 The Group noted that, according to information recently provided by the United Kingdom, the SADIS Gateway function should be operational in September 2003 instead of September 2002 as previously expected. This explains the increase in the estimated costs for 2004 and 2005. At its next Meeting, the SCRAG will receive the Report on this issue of the SADISOPSG Group which will meet in June 2002.

TABLE 2
SUMMARY OF ESTIMATED SADIS COSTS
FOR THE YEARS 2003, 2004 AND 2005

Cost Item	Estimated Costs 2003 (UK £)	Estimated Costs 2004 (UK £)	Estimated Costs 2005 (UK £)
Amortization and interest	48 758	93 313	88 391
Annual cost excluding amortization and interest	344 132	445 599	445 599
<i>Sub-total UK Meteorological Office</i>	<i>330 165</i>	<i>368 699</i>	<i>368 699</i>
SADIS Gateway	62 725	170 213	165 291
UK administrative costs	18 000	18 000	18 000
<i>Sub-total UK</i>	<i>410 890</i>	<i>556 912</i>	<i>551 990</i>
ICAO support services costs	20 000	20 000	20 000
TOTAL	430 890	576 912	571 990

AGENDA ITEM 3: AMENDMENT TO ANNEX II, SADIS INVENTORY, TO THE AGREEMENT ON THE SHARING OF COSTS OF THE SATELLITE DISTRIBUTION SYSTEM RELATING TO AIR NAVIGATION

3.1 The Group reviewed the amendments to Annex II, SADIS inventory, to the SADIS Agreement as proposed by the United Kingdom and by the SADISOPSG Group. These amendments reflect the changes introduced in the identification and denomination of the services covered by the SADIS Agreement as well as in the amount of resources necessary for the provision of the SADIS services.

3.2 The additions and deletions to the actual text of Annex II appear in outline and strikethrough formats in **Appendix G**. As a result of its review, the Group adopted the following Conclusion:

Conclusion 2/3 -

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 G**.

AGENDA ITEM 4: FUTURE WORK AND ARRANGEMENTS FOR THE SCRAG/3 MEETING

4.1 The Group noted that its next Meeting, in addition to its review of the SADIS estimated costs and cost shares for the year 2003, will have to audit the actual SADIS costs for the year 2001. The Meeting will be convened 5 – 6 November 2002 with the location to be confirmed.

AGENDA ITEM 5: OTHER BUSINESS

5.1 No questions were raised under this agenda item.

APPENDIX A

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APPENDIX B**LIST OF SCRAG/2 WORKING PAPERS**

Working Paper No.	Agenda Item	Subject	Presented by
1	1 - 5	Provisional agenda	Secretariat
2	2	Depreciated assets: SADIS costs	United Kingdom
3 Revised	2	SADIS Costs: 2 to 5 years	United Kingdom
4	1 & 2	Status of payments	United Kingdom
5	1 & 2	Status of accession to the SADIS Agreement	Secretariat
6 Revised	2	Summary of estimated costs and cost shares for the year 2002	Secretariat
7	3	SADIS Inventory	United Kingdom
8	1	Issues related to the first year of implementation of the revised SADIS Agreement	Secretariat
9	3	Amendment to Annex II, SADIS Inventory, to the SADIS Agreement	Secretariat

APPENDIX C

**INVENTORY OF ASSETS AS AT 31 DECEMBER 2001
EMPLOYED BY THE UNITED KINGDOM TO PROVIDE SADIS SERVICES**

(1) Inventory of Assets: 2001	(2) Original Value	(3) Depreciated charges in current year.	(4) Total accumulated depreciation	(5) Net depreciated values at end of current year
<u>UNITED KINGDOM</u> HUB Investment	£191,928	£15,997	£191,928	£0
New Two-Way Hub enhancement	£250,000	£50,000	£200,000	£50,000
New Development & project Management	£75,000	£15,000	£60,000	£15,000
Communication UKMO to Whitehill	£30,896	£2,576	£30,896	£0
<u>TRIAL SADIS PROGRAMME SYSTEMS</u>				
SADIS VSAT Seven One-Way VSAT and spares	£44,988	£3,748	£44,988	£0
Three Two-Way VSATS and spares	£98,958	£8,246	£98,958	£0
ISCS VSAT back-up system	£8,453	£703	£8,453	£0
New 2*Two-Way enhanced VSATS	£50,000	£10,000	£40,000	£10,000

Trials & Support for ICAO Training	£35,456	£2,956	£35,456	£0
CAPITALIZED OPERATION ASSET (see appendix B to ESCRAG/1 report)	£303,000	£25,250	£303,000	£0
TOTAL (original investment)	£713,679	£59,476	£713,679	£0
New Investment	£375,000	£75,000	£300,000	£75,000

APPENDIX D

**STATUS OF ACCESSION TO THE SADIS AGREEMENT
AS AT 1 NOVEMBER 2001**

STATES	Least Developed Countries Exempted	Access to SADIS not Operational	Accession to SADIS Agreement	Notes
Algeria				No reply received
Armenia			Yes	
Australia			No	
Austria			Yes	
Azerbaijan			Yes	Notice of accession to be completed
Bahrain			Yes	
Bangladesh	X			No reply received
Belgium			Yes	
Benin	X			No reply received
Botswana			Yes	
Brunei Darussalam			No	
Bulgaria				No reply received
Burkina Faso	X			No reply received
Cameroon			Yes	Reply from ASECNA; to be completed by State
Chad	X			No reply received
China			Yes	
Congo			Yes	Reply from ASECNA; to be completed by State
Côte d'Ivoire			Yes	Reply from ASECNA; to be completed by State
Croatia			Yes	
Cyprus			Yes	
Czech Republic			Yes	
Democratic People's Republic of Korea			Yes	
Democratic Republic of the Congo	X		Yes	
Denmark			Yes	
Egypt			Yes	
Equatorial Guinea	X			No reply received
Estonia			Yes	
Ethiopia	X			No reply received
Federal Republic of Yugoslavia			Yes	Notice of accession to be completed
Finland			Yes	
France			No	
Gabon			Yes	Reply from ASECNA; to be completed by State
Gambia	X			No reply received
Georgia			Yes	
Germany			Yes	
Ghana				No reply received

**STATUS OF ACCESSION TO THE SADIS AGREEMENT
AS AT 1 NOVEMBER 2001**

STATES	Least Developed Countries Exempted	Access to SADIS not Operational	Accession to SADIS Agreement	Notes
Greece			Yes	
Guinea	X			No reply received
Hungary			Yes	
India				No reply received
Indonesia				No reply received
Italy			Yes	Notice of accession to be completed
Jordan			Yes	
Kenya				No reply received
Kuwait			Yes	Notice of accession to be completed
Lao People's Democratic Republic	X			No reply received
Lebanon				No reply received
Madagascar	X		Yes	
Malaysia			No	To be confirmed
Maldives	X			No reply received
Malta			Yes	
Mauritius			Yes	
Mongolia			Yes	
Morocco			Yes	
Mozambique	X			No reply received
Namibia				No reply received
Nepal	X			No reply received
Netherlands			Yes	
Niger	X			No reply received
Nigeria				No reply received
Oman			Yes	
Pakistan			No	
Portugal			Yes	
Republic of Moldova		X	Yes	
Romania			Yes	
Russian Federation				No reply received
Rwanda	X	X		No reply received
Saudi Arabia				No reply received
Senegal			Yes	Reply from ASECNA; to be completed by State
Seychelles				No reply received
Singapore			No	
Slovakia			No	
South Africa				No reply received
Sri Lanka				No reply received

**STATUS OF ACCESSION TO THE SADIS AGREEMENT
AS AT 1 NOVEMBER 2001**

STATES	Least Developed Countries Exempted	Access to SADIS not Operational	Accession to SADIS Agreement	Notes
Swaziland				No reply received
Sweden			Yes	
Switzerland			Yes	
Thailand			No	
Togo	X		Yes	
Tunisia			Yes	
Turkey			Yes	Notice of accession to be completed
Turkmenistan				No reply received
Uganda	X		Yes	
Ukraine			Yes	Notice of accession to be completed
United Arab Emirates			Yes	
United Kingdom			Yes	Notice of accession to be completed
United Republic of Tanzania	X		Yes	
Viet Nam			Yes	
Yemen	X			No reply received
Zambia	X			No reply received

APPENDIX E

**SADIS COST ESTIMATES FOR 2002 TO 2005 FOR SADIS SERVICES PROVIDED BY THE
UNITED KINGDOM METEOROLOGICAL OFFICE**

Table 1	Year 2002 Projected Costs at 2001 prices	Year 2003 Projected Costs at 2001 prices	Year 2004 Projected Costs At 2001 prices	Year 2005 Projected Costs at 2001 prices
() resource in man/yr				
<u>ANNUAL STAFF COSTS</u>				
Help Desk (see note 1)	38534 (0.25)	38534 (0.25)	77068 (0.50)	77068 (0.50)
Engineer	3083 (0.02)	3083 (0.02)	3083 (0.02)	3083 (0.02)
Network Computer Engineer	30827 (0.20)	30827 (0.20)	30827 (0.20)	30827 (0.20)
Executive Officer	32627 (0.55)	32627 (0.55)	32627 (0.55)	32627 (0.55)
Support Specialist	41527 (0.70)	41527 (0.70)	41527 (0.70)	41527 (0.70)
<i>STAFF COST SUB- TOTAL</i>	146598	146598	185132	185132
<u>SERVICES</u>				
Satellite Segment	96067	96067	96067	96067
Annual Maintenance	40000	40000	40000	40000
Message-Switch	30000	30000	30000	30000
SUB TOTAL	166067	166067	166067	166067
<u>COST OF DEPRECIATED CAPITAL</u>				
- Two Way	90500	0	0	0
SUB-TOTAL	90500	0	0	0

Two-Way system Expansion (see Note 2)	0	17500	17500	17500
<u>TOTAL FOR UKMO SADIS</u>	£403165	£330165	£368699	£368699
<u>TABLE 2</u> <u>NATS GATEWAY</u>	Year 2002 Projected Costs at 2001 prices	Year 2003 Projected Costs at 2001 prices	Year 2004 Projected Costs At 2001 prices	Year 2005 Projected Costs at 2001 prices
Operational Staff Support: Air Traffic Services Assistant		15300	45900	45900
Engineering Staff Support: Systems Engineer		5000	15000	15000
SADIS Administration Support		4167	12500	12500
SUB TOTAL	0	24467	73400	73400
Communication Link to UKMO		2333	7000	7000
System maintenance		4667	14000	14000
SUB TOTAL	0	7000	21000	21000
<u>COST OF DEPRECIATED CAPITAL</u>				

<u>CAPITAL</u>				
OPMET Gateway Function		15877	63508	63508
Cost of capital		15381	12305	7383
<u>TOTAL FOR GATEWAY</u>	0	62725	170213	165291
CAA Admin	18000	18000	18000	18000
ICAO Admin	20000	20000	20000	20000
UNITED KINGDOM SADIS TOTAL	441165	430890	576912	571990

Note 1. The introduction of BUFR coded SIGWX and SIGMETS, if required by the ICAO Regions to be sent to the UK message-Switch, will require some expansion to the help desk requirement

Note 2 . The expansion of the two-way system will have an impact on hub costs at the SADIS up-link. The values for this expansion have been reduced to reflect the requirements identified in the Strategic Planning Tables developed for the SADISOPSG.

APPENDIX F
ESTIMATED COST SHARES FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2002 *

STATES	2000 Available Tonne-Kilometers in Scheduled Services (000)	Percentage Cost Share	Share of 2002 Estimated Costs (£ Sterling)
Algeria	444 820	0.226%	998.04
Armenia	121 543	0.062%	272.71
Austria	2 888 637	1.469%	6 481.25
Azerbaijan	195 718	0.100%	439.13
Bahrain	783 095	0.398%	1 757.03
Belgium	5 408 463	2.751%	12 135.00
Botswana	14 613	0.007%	32.79
Bulgaria	165 478	0.084%	371.28
Cameroon	126 900	0.065%	284.73
China **	33 977 923	17.281%	76 236.44
Congo	89 871	0.046%	201.64
Côte d'Ivoire	119 255	0.061%	267.57
Croatia	140 082	0.071%	314.30
Cyprus	469 875	0.239%	1 054.26
Czech Republic	554 815	0.282%	1 244.84
Democratic People's Republic of Korea	40 000	0.020%	89.75
Denmark	1 337 942	0.680%	3 001.95
Egypt	2 206 977	1.122%	4 951.81
Estonia	73 321	0.037%	164.51
Federal Republic of Yugoslavia	188 800	0.096%	423.61
Finland	1 852 728	0.942%	4 156.98
Gabon	419 021	0.213%	940.16
Georgia	42 753	0.022%	95.93
Germany	25 338 288	12.887%	56 851.65
Ghana	342 640	0.174%	768.78
Greece	1 855 651	0.944%	4 163.53
Hungary	714 130	0.363%	1 602.30
India	4 452 896	2.265%	9 990.99
Indonesia	3 002 733	1.527%	6 737.25
Italy	9 008 723	4.582%	20 212.92
Jordan	946 498	0.481%	2 123.66
Kenya	597 142	0.304%	1 339.81
Kuwait	1 321 129	0.672%	2 964.22
Lebanon	498 647	0.254%	1 118.82

APPENDIX F (cont'd)

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ESTIMATED COST SHARES FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2002 *

STATES	2000 Available Tonne-Kilometers in Scheduled Services (000)	Percentage Cost Share	Share of 2002 Estimated Costs (£ Sterling)
Malta	416 266	0.212%	933.98
Mauritius	963 676	0.490%	2 162.20
Mongolia	96 203	0.049%	215.85
Morocco	1 409 093	0.717%	3 161.59
Namibia	242 841	0.124%	544.86
Netherlands	15 063 334	7.661%	33 797.68
Nigeria	103 978	0.053%	233.30
Oman	852 450	0.434%	1 912.65
Portugal	2 060 644	1.048%	4 623.48
Romania	579 556	0.295%	1 300.35
Russian Federation	8 702 231	4.426%	19 525.24
Saudi Arabia	5 769 308	2.934%	12 944.63
Senegal	83 445	0.042%	187.23
Seychelles	205 974	0.105%	462.14
South Africa	5 258 086	2.674%	11 797.59
Sri Lanka	1 395 664	0.710%	3 131.46
Swaziland	62	0.000%	0.00
Sweden	2 160 493	1.099%	4 847.51
Switzerland	8 068 637	4.104%	18 103.64
Tunisia	476 412	0.242%	1 068.93
Turkey	3 483 645	1.772%	7 816.27
Turkmenistan	238 312	0.121%	534.70
Ukraine	340 140	0.173%	763.17
United Arab Emirates	5 229 611	2.660%	11 733.71
United Kingdom	32 922 616	16.744%	73 868.79
Viet Nam	759 640	0.386%	1 704.41
TOTAL	196 623 424	100.000%	441 165.00

* 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.

** China's share includes:

- Hong Kong: 13 368 500 000 ATKs corresponding to a share of 2001 estimated costs of £ 29 994.97
- Macau: 266 103 000 ATKs corresponding to a share of 2001 estimated costs of £ 597.06

APPENDIX G

ANNEX II

SADIS INVENTORY

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 completion of the hub enhancement project) and communications circuits including those required for the OPMET Gateway function, ISCS 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 which that includes a significant part of the development of the software and technical configuration. The inventory is in accordance with the SADIS User Guide and as listed (in part) in the ICAO ESCRAG/7 Meeting Report.

1. EQUIPMENT

A. Hub infrastructure and communications circuits

The hub infrastructure connection to the ~~United Kingdom~~ MET Office (UKMO) message switch (TROPICS) consists of a number of units developed in conjunction with ~~Matra Marconi Space~~ Astrium and other suppliers. These are installed either at Bracknell or at the uplink site at Whitehills, Oxford. ~~They are, with the exception of the message switch (TROPICS) and the OPMET Gateway function, 80 per cent dedicated to (i.e. principally procured for) SADIS usage or 100 per cent dedicated to (i.e. solely procured for) SADIS usage.~~ The components of the inventory have changed as the Two-Way enhancement project is fully implemented. More specifically, the inventory of units or items includes those:

i) Solely procured for SADIS

- a) 2 two-way enhanced VSATs for enhanced two-way capability, ~~including development of the two-way enhancement, staff support and trials: £375 000;~~
- b) OPMET Gateway function equipment: £40 000.

Note. Also solely procured for SADIS but not inventory items as such are: trials of transmission of SIGWX in BUFR code and transfer of RAFC responsibilities to WAFC.

ii) **Principally procured for SADIS**

- a) At the ~~UKMO~~ Met Office
 - ~~2 megapacs communication interface units~~
 - ~~Matrix switch~~
 - Product display console, including software
 - ~~SADIS management console~~

- b) Communications between Whitehills and ~~UKMO~~ Met Office
 - 2 Fibre Optic 64 Kbps circuits

- c) At the uplink site (Whitehills)
 - 1) Units forming part of a totally integrated rack structure, with back-up, referred to as Chain A and Chain B:
 - ~~2 megapacs communication interface units~~
 - ~~2~~ 1 CX1000 frame relay switches
 - ~~Matrix switch~~
 - 1 SSU (System Supervisory Unit)
 - 2 modulators
 - ~~2~~ 1 receive modems switch

 - 2) Units and services leased from ~~Matra Marconi Space~~ Astrium under contract to Cable and Wireless Communications Ltd.:
 - 1 (70 to 140 MHz) convertor
 - Use of 1 (140 to C band) convertor
 - Use of satellite hub — Lease represents only a very small part of this large aperture

~~**Total investment in hub infrastructure and communications circuits including investments in leases, principally procured for SADIS: £240 000 of which £65 000 is invested at Bracknell and £175 000 at Whitehills.**~~

iii) **Not procured principally for SADIS**

- a) Message switch (TROPICS): Total investment £2.3M of which 1.25 per cent is attributable to SADIS usage;

- b) OPMET Gateway function — NATS infrastructure site: Operational core MET system, including installation, oversight, tests and training: £700 000 of which 20 per cent is attributable to SADIS.

B. ISCS data back-up system

ISCS VSAT system, including receiver, cables, break unit and X25 frame relay switch.

Note. The equipment, including leases, listed above under A and B, are being capitalized over the SADIS contract period.

SADIS TWO WAY DEVELOPMENT
INVENTORY OF DELIVERABLE EQUIPMENT

<i>Item</i>	<i>Description</i>	<i>Quantity</i>
1.	Bracknell Equipment	
1.1	Network Management System (NMS Computer)	1
1.2	MemoTech PAD (for NMS)	1 *
1.3	Telecoms interface units Megabox	2
1.4	CX1000 Frame Relay Switch (for NMS)	1 *
1.5	Product display console including software (COROBOR)	1 *
2.	Bracknell Equipment (Spares)	
2.1	Telecoms interface units Megabox	2
2.2	NMS Spare CPU	
2.3	MemoTech PAD (for NMS)	1 *
3.	Communication link Whitehill / Bracknell	
3.1	Fibre optic 64 Kbps circuits	2 *
4.	Whitehill earth station (uplink equipment)	
4.1	Telecoms controller Megapac V rack assembly	2
4.2	Station interface unit (SIU)	2
4.3	8360 Modulator	2 *
4.4	8471 Receive Demodulators	12
4.5	8550 Modem Switch	1 *
4.6	140 - L band upconverter	2
4.7	X Term NMS simulator	1
4.8	Equipment Rack Assembly (Chain 1)	1 *
4.9	Equipment Rack Assembly (Chain 2)	1

APPENDIX G (cont'd)

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5.	Whitehill earth station (spares)	
5.1	8471 Receive Demodulators	1
5.2	Station interface unit (SIU)	1
5.3	Megapac V rack assembly	2
5.4	Megabox Frad units	2
5.5	140 - L band upconverter	1
6.	Whitehill services (leased from Astrium under contract to Cable & Wireless)	
6.1	70 MHz to 140 MHz converters	2 *
6.2	140 MHz to C band converter	2 *
6.3	Satellite Hub leased bandwidth	1 slot *
7.	TWO-WAY VSAT Systems (2 in number)	
7.1	Channel master 2.4 metre type approved antenna	2
7.2	5 watt C Band Outdoor unit assembly	2
7.3	Low noise block downconverter	2
7.4	RF Integration kit	2
7.5	Indoor unit rack assembly	2
7.6	Station interface unit (SIU)	2
7.7	8471 Receive Demodulators	2
7.8	Telecoms interface units Megabox	2
7.9	8371 Modulator	2
7.10	Tool kit	2
7.11	Cross-site cables set	2
8.	Test Rig at Poynton	
8.1	Enhanced Simulator	1

(*) Denotes equipment reused from original broadcast system.

2. PROCURED SERVICES

- a) Space segment annual lease: 900 MHz radio frequency dedicated to SADIS with data rates at 38.4 Kbps for the one-way channel and 19.2 Kbps for the two-way channel;
- b) Annual maintenance of ~~UKMO~~ Met Office and Whitehills site equipment which is not leased;
- c) ~~OPMET~~-Gateway function:
 - i) Communication link between ~~UKMO~~ MET Office and NATS infrastructure site;
 - ii) System maintenance.

3. ANNUAL STAFF REQUIREMENTS

A. ~~United Kingdom Meteorological Office~~ of the UK

Help Desk

Note. The Help 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 a call-out capability.

<i>24-hour support</i>	<i>Grade and skill</i>
1. Help desk (first point of contact)	Scientific supervisor
2. Operational supervisor	Technical meteorologist
3. Systems supervisor	Computer engineer
4. HQ maintenance support	Telecommunication technical officer

The total support for SADIS is considered as 10% of the total support offered by the four posts. These four posts are directly involved with SADIS operations and form part of a total roster of eight different skills and functions.

<i>Additional support</i>	<i>Grade and skill</i>
Systems integration team	25% 2% of engineer 5% 20% of network computer engineer 10% of data traffic manager —(computer scientist)
Administrator Support to ICAO Regions and SADIS User Guide	15% 55% of executive officer 25% 70% of support specialist and meteorologist (providing support to ICAO Regions, SADIS users and SADIS User Guide)
Development & enhanced 2-Way Field Trial Support and other projects	
Manpower	10% of engineer 10% of data traffic manager
Budgets	Travel/Expenses (Consultants fees etc)

B. NATS infrastructure site (OPMET Gateway function)

See also note under 3. A., "Help desk", above.

24-hour support

Grade and skill

- | | |
|---------------------------------|--|
| 1. Operational staff support | 40% of air traffic services assistant |
| 2. Engineering staff support | 20% of systems engineer |
| 3. SADIS administration support | 100% of air traffic services assistant |

– END –