APPENDIX D

SADIS INVENTORY

Note.— 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, 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 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

1.1 Hub infrastructure and communications circuits

1.1.1 The hub infrastructure connection to the MET Office message switch (TROPICS) consists of a number of units developed in conjunction with Astrium and other suppliers. These are installed either at Bracknell or at the uplink site at Whitehills, Oxford. The components of the original inventory changed when the two-way enhancement project was fully implemented. ~~It should be noted that the Met Office is in the process of upgrading its message switch which will be known as FROST.~~

Solely procured for SADIS

a) 2 two-way enhanced VSATs for enhanced two-way capability;

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

Principally procured for SADIS

a) at the Met Office

   1) product display console, including software;

b) communications between Whitehill and Met Office

   1) 2 Fibre Optic 64 Kbps circuits;

c) at the uplink site (Whitehill)

   1) units forming part of a totally integrated rack structure, with back-up, referred to as Chain A and Chain B (see the list at Sections 4 and 5); and

   2) units and services leased from 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

Not procured principally for SADIS

a) message switch (~~TROPICS~~FORST): total investment ~~£2.3M~~ £1.5M of which ~~1.25~~1.76 per cent is attributable to SADIS usage; ~~and~~

b) message switch (CoreMet System)~~.~~; and

c) communication link (SVC) between SADIS Gateway and Met Office.

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

1.2 **ISCS data back-up system**

a) 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.

1.3 SADIS two-way development inventory of deliverable equipment

Note.— An asterisk (*) denotes equipment reused from original broadcast system.

Item	*Description*	*Quantity*
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*
2.4	CX1000 Frame Relay Switch (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
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	Mega PACV Frad units	2
5.5	140 - L band upconverter	1
5.6	8360 Modulator 1	
5.7	8550 Modem Switch	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	

9. **Communications equipment for SADIS second generation trial**

9.1	FROST or TROPICS port	1
9.2	Megapac	1
9.3	QPSK Modulator	1
9.4	QPSK De-Modulator/Receivers	2
9.5	Modem running Viterbi or Turbo coding	1
9.6	ISDN service between Bracknell and Whitehill	
9.7	ISDN call charges for the duration of the trial	

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 Met Office and Whitehills site equipment which is not leased; and

c) gateway function:

1) communication link between Met Office and NATS infrastructure site; and

2) system maintenance.

3. **ANNUAL STAFF REQUIREMENTS**

3.1 **Met 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.

	24-hour support	*Grade and skill*
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

Additional support

Note.— 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.

	Additional support	*Grade and skill*
1.	Systems integration team	2 per cent of engineer 20 per cent of network computer engineer
2.	Administrator	55 per cent of executive officer 70 per cent of support specialist and meteorologist (providing support to ICAO Regions, SADIS users and SADIS User Guide)

Development & enhanced two-Way field trial support and other projects

	Other projects	*Grade and skill*
1.	Manpower	10 per cent of engineer 10 per cent of data traffic manager
2.	Budgets	Travel/Expenses (Consultants fees etc.)

SADIS second generation trial

	Second generation trial	*Grade and skill*
1.	Manpower	5 per cent of engineer 5 per cent of specialist
2.	Budgets	Engineering consultancy

3.2 **NATS infrastructure site (OPMET Gateway function)**

Note.— See also note under 3.1 "Help desk", above.

	24-hour support	*Grade and skill*
1.	Operational staff support	50 per cent of air traffic services assistant
2.	Engineering staff support	20 per cent of systems engineer
3.	SADIS administration support	50 per cent of air traffic services assistant

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