

**APPENDIX C****Part I****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 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 includes a significant part of the development of the software and technical configuration.

**1. EQUIPMENT****A. Hub infrastructure & communications circuits**

The hub infrastructure connection to the United Kingdom Met Office (UKMO) message-switch consist of a number of units developed in conjunction with Matra Marconi Space and other suppliers. These are installed either at Bracknell or at the up-link site at Whitehill, Oxford. They are, with the exception of the messages switch (TROPICS) and the OPMET gateway function, 80% dedicated to (i.e. principally procured for) SADIS usage or 100 percent dedicated to (i.e. solely procured for) SADIS usage. 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;
- b) OPMET gateway function equipment.

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
  - 2 megapacs communication interface units
  - Matrix switch
  - Product display console, including software
  - SADIS management console
- b) **Communications between Whitehill and UKMO**
  - 2 Fibre Optic 64 Kbps circuits
- c) **At the Up-link Site (Whitehill)**

- i) Units forming part of a totally integrated rack structure, with back-up, referred to as Chain A and Chain B:
  - 2 Megapacs communications interface units
  - 2 CX1000 frame relay switches
  - Matrix switch
  - 1 SSU (System Supervisory Unit)
  - 2 modulators
  - 2 receive modems
- ii) Units and services leased from Matra Marconi Space under contract to Cable and Wireless:
  - 1 (70 to 140 MHz) convertors
  - Use of 1 (140 to C band) convertors
  - Use of Satellite Hub — Lease represents only on 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 £175000 at Whitehill.**
- iii) **Not procured principally for SADIS**
  - a) Message-switch (TROPICS): Total investment £2.3M of which 1.25 percent 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 percent is attributable to SADIS

## B. ISCS Data Back-up System

ISCS VSAT system including, receiver, cables, break unit and X 25 frame relay switch.

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

## 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 Kbp for the two-way channel.
- b) Annual maintenance of UKMO and Whitehills site equipment which is not leased.
- c) OPMET gateway function:
  - i) Communication link between UKMO and NATS infrastructure site
  - ii) System maintenance

### 3. ANNUAL STAFF REQUIREMENT

#### A. United Kingdom Meteorological Office

##### Help Desk

Note.— The Help Desk acts as a first point of contact for all enquiries, including those concerning the OPMET gateway function. Complex enquiries 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 & 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 |

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  
Systems Integration Team

Grade & Skill  
25% of engineer  
5% of network computer engineer  
10% of data traffic manager (computer scientist)

|                                            |                                             |
|--------------------------------------------|---------------------------------------------|
| Administrator                              | 15% of executive officer                    |
| Support to ICAO Regions & SADIS User Guide | 25% of support specialist and meteorologist |

#### B. NATS Infrastructure Site (OPMET gateway function) See also note under 3 A 'Help desk' above

##### 24-hour support

##### Grade & Skill

- |                              |                                        |
|------------------------------|----------------------------------------|
| 1. Operational staff support | 40% of air traffic services assistant* |
| 2. Engineering staff support | 20% of systems engineer*               |

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\* Information was provided after the meeting that these percentages and staff numbers would change when the estimates were provided to ESCRAG/5.



## Part II

### SADIS Inventory (proposal for rearranging main headings of inventory)

|                                                                                  | % for broadcast | % for two-way |
|----------------------------------------------------------------------------------|-----------------|---------------|
| A. SADIS communications element                                                  |                 |               |
| 1) Hub infrastructure                                                            |                 |               |
| 2) Communications circuits (between packet switch at Bracknell and SADIS uplink) |                 |               |
| 3) Space Segment (procured services)                                             |                 |               |
| 4) Staff                                                                         |                 |               |

|                            | % for broadcast |      | % for two-way |
|----------------------------|-----------------|------|---------------|
|                            | OPMET           | WAFS | OPMET         |
| B. SADIS MET Gateway       |                 |      |               |
| 1) Infrastructure          |                 |      |               |
| 2) Communications circuits |                 |      |               |
| 3) Staff                   |                 |      |               |

|                                  |
|----------------------------------|
| C. SADIS VSATs                   |
| 1) Receive only*                 |
| Should be developed accordingly. |
| 2) Two-way*                      |
|                                  |

\*This equipment, with the exception of the equipment required for the test programme, is not covered by the SADIS Cost Recovery. Usually this equipment is purchased by the user state, users within the state or other regional agreement.

**ADDENDUM TO APPENDIX C - 1998 SADIS INVENTORY****Basic Cost\*\* of Future Two-Way VSAT Deployment**

Two-way VSAT System

Recomended Spares

Installation and Commissioning

Expenses and Shipping Costs (est.)

Transmission licence application costs -  
assistance by MMS

IntelSat Registration

Two-way system expansion (e.g. demodulators)

TOTAL

+ ongoing maintenance

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\*Actual costs will depend upon sites selected for SADIS enhanced two-way tests.