

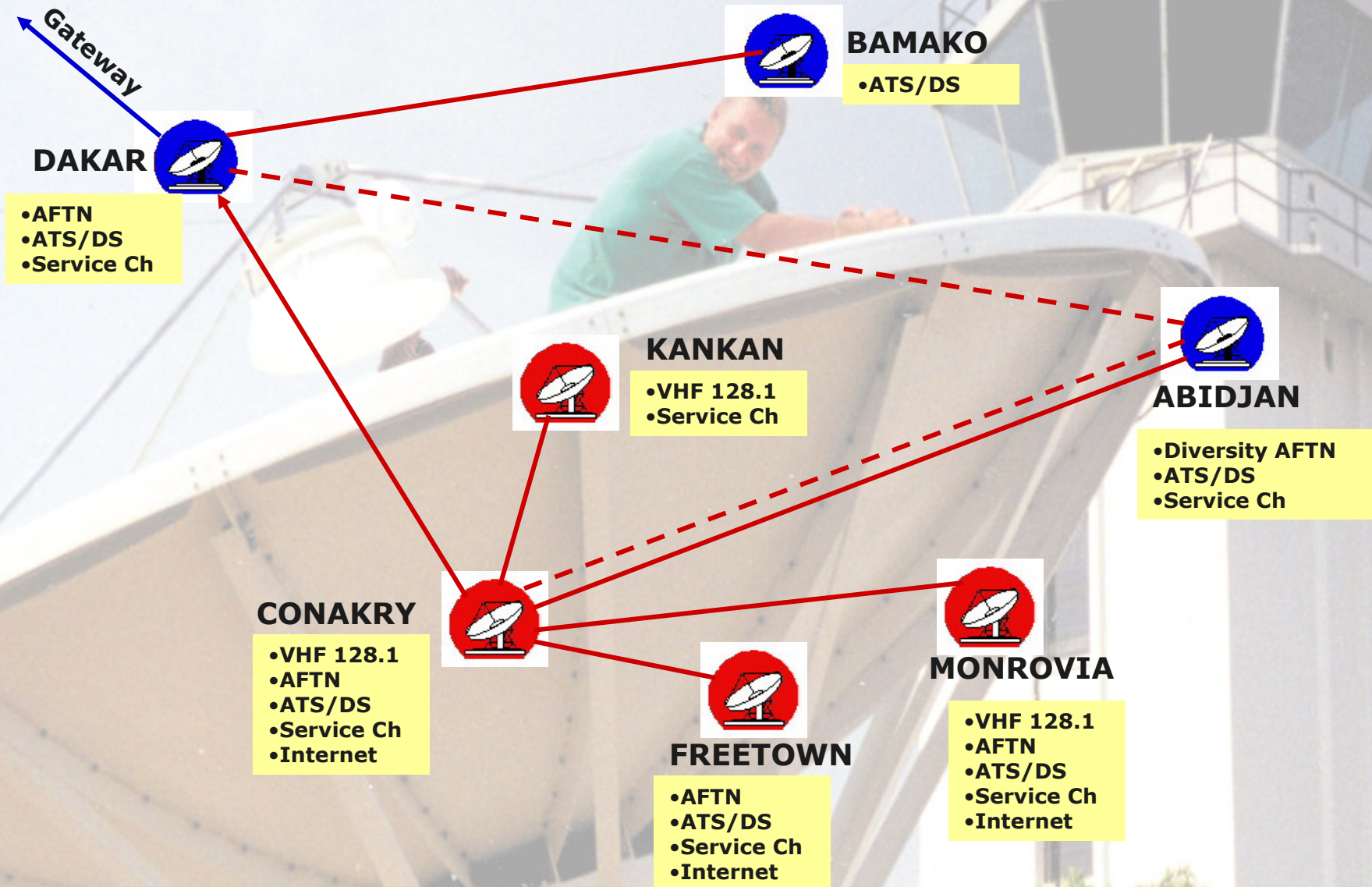
Roberts FIR ATM System

SNMC conference, DAKAR,
December 17-19, 2007

Presented by: Elhadj Ibrahima BAH

SENIOR RADIO ENGINEER
ROBERTS FIR / CONAKRY

Roberts FIR VSAT Network



ROBERTS FIR VSAT LINKS

a) Links to ASECNA:

- **Conakry-Dakar**

- 1 Data Channel
- 1 ATS/DS Voice Channel (can be routed to Bamako and Abidjan)
- 1 Service Channel

- **Conakry-Abidjan**

- 1 Data Channel (proposed as backup to Dakar)
- 1 ATS/DS Voice Channel
- 1 Service Channel

ROBERTS FIR VSAT LINKS

b) Internal Roberts Links:

- **Conakry-Freetown**

- 1 Data Channel (X.25, 9600 bps)
- 1 ATIS/DS Voice Channel
- 1 Service Channel
- 1 Internet link

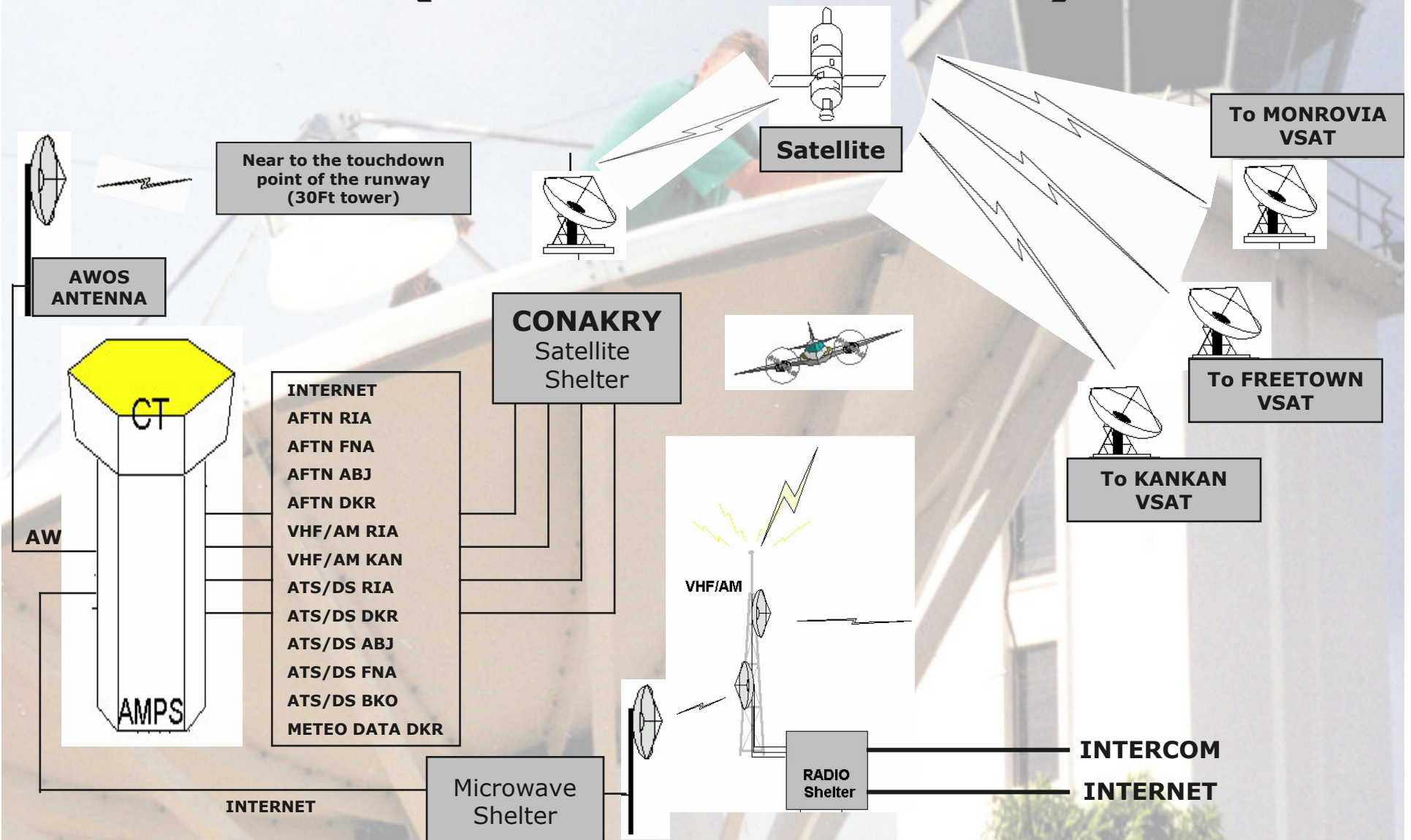
- **Conakry-Monrovia**

- 1 Data Channel (X.25, 9600 bps)
- 1 ATIS/DS Voice Channel
- 1 Voice Channel (Roberts FIR extended range Mode 3 VHF)
- 1 Service Channel
- 1 Internet link

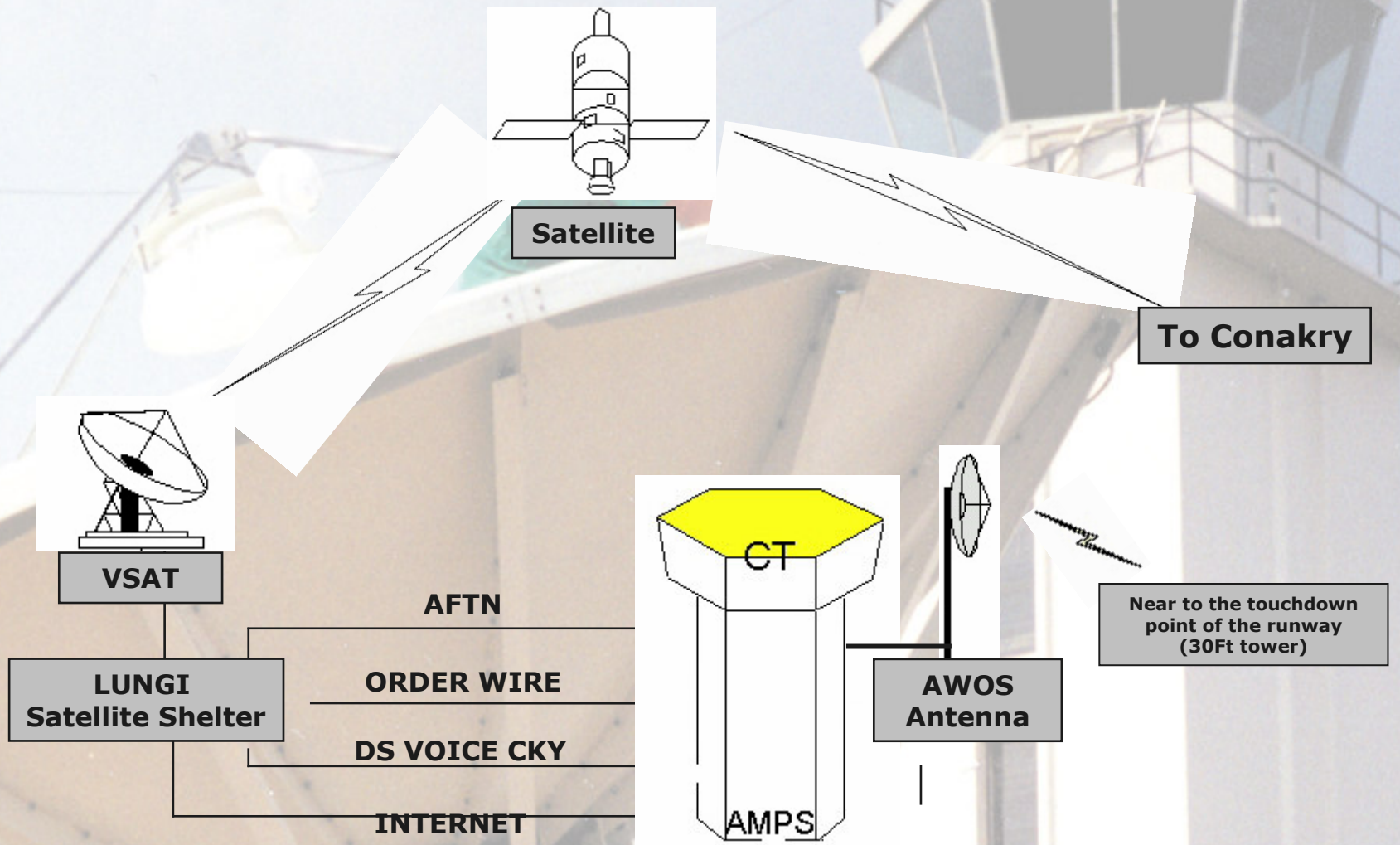
- **Conakry-Kankan**

- 1 Voice Channel
- 1 Service Channel

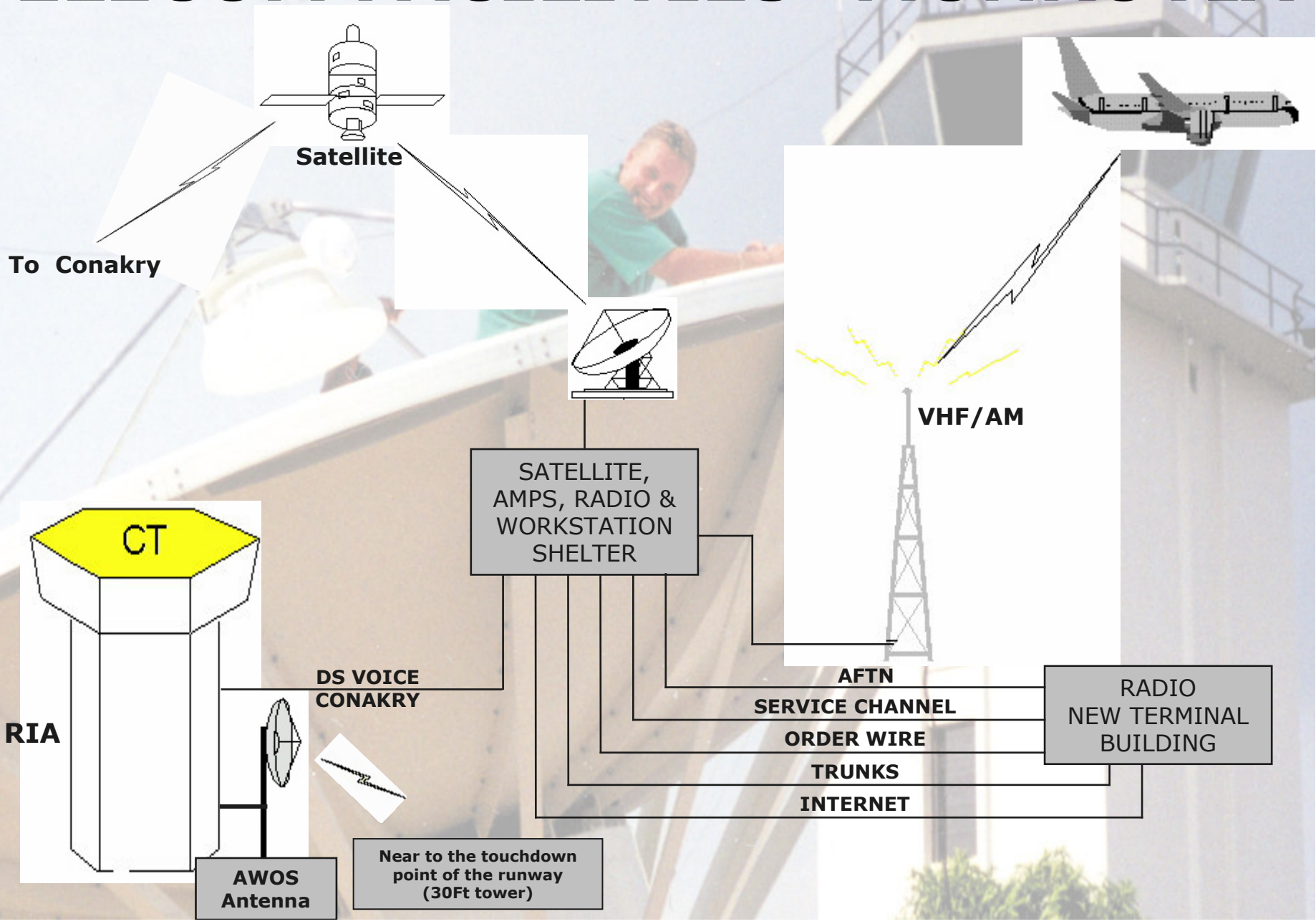
TELECOM FACILITIES – CONAKRY (Roberts control)



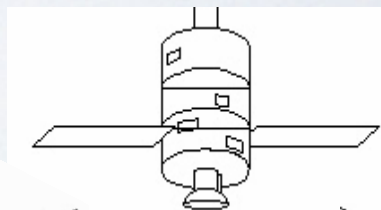
TELECOM FACILITIES - FREETOWN



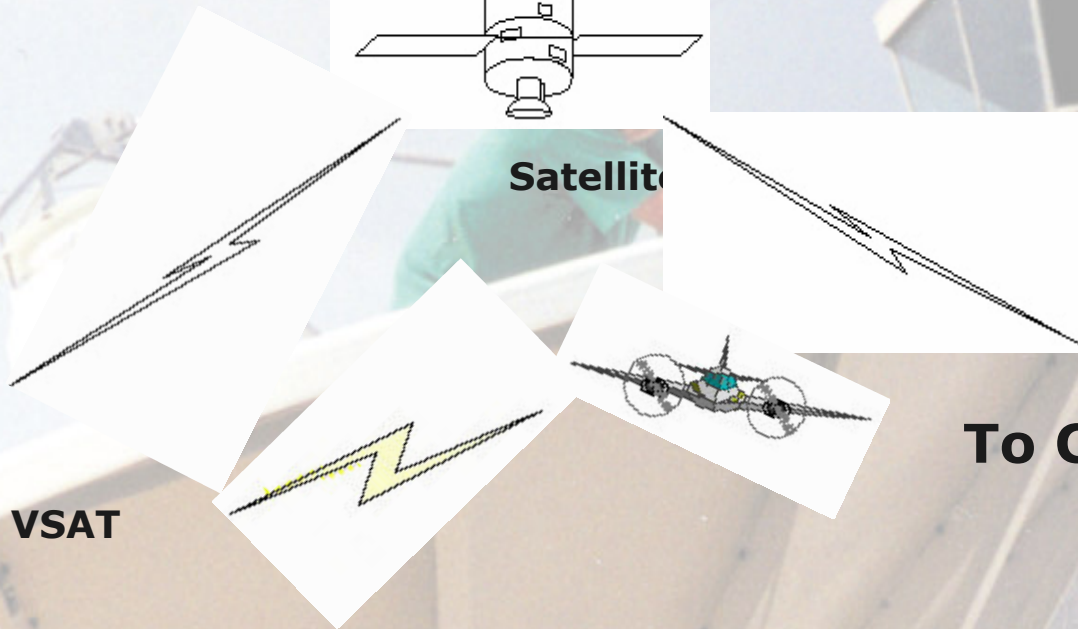
TELECOM FACILITIES - MONROVIA



TELECOM FACILITIES – KANKAN

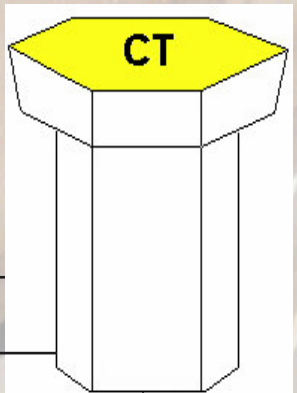


Satellite



VSAT

**Kankan
satellite room**



CT

VHF 128.1 MHz

To Conakry

Reliability of Services

A large satellite dish antenna is mounted on a tall, white tower. A person in a green shirt is visible on the tower, working on the dish. The background shows a clear sky and some greenery at the base of the tower.

a) Built-in Redundancy:

- Conakry-Freetown-Monrovia and Kankan VSAT equipment redundant,
 - Dual SSPAs
 - Dual LNAs
 - Dual down-converters
 - Dual up-converters
 - N+1 redundant modems

Reliability of Services

The background of the slide is a photograph of an air traffic control tower. The tower is a tall, white, cylindrical structure with a glass-enclosed observation deck at the top. A person in a green shirt is visible on the roof of the tower, leaning over a large, white, curved structure that appears to be part of the tower's infrastructure. The sky is clear and blue.

b) Conakry and Monrovia

- Microwave equipment redundant, with automatic switchover
 - Hot standby radios
- Warm standby AFTN servers, with automatic switchover

c) Conakry, Monrovia and Lungi stations are equipped with Automated Weather Observing System (AWOS).

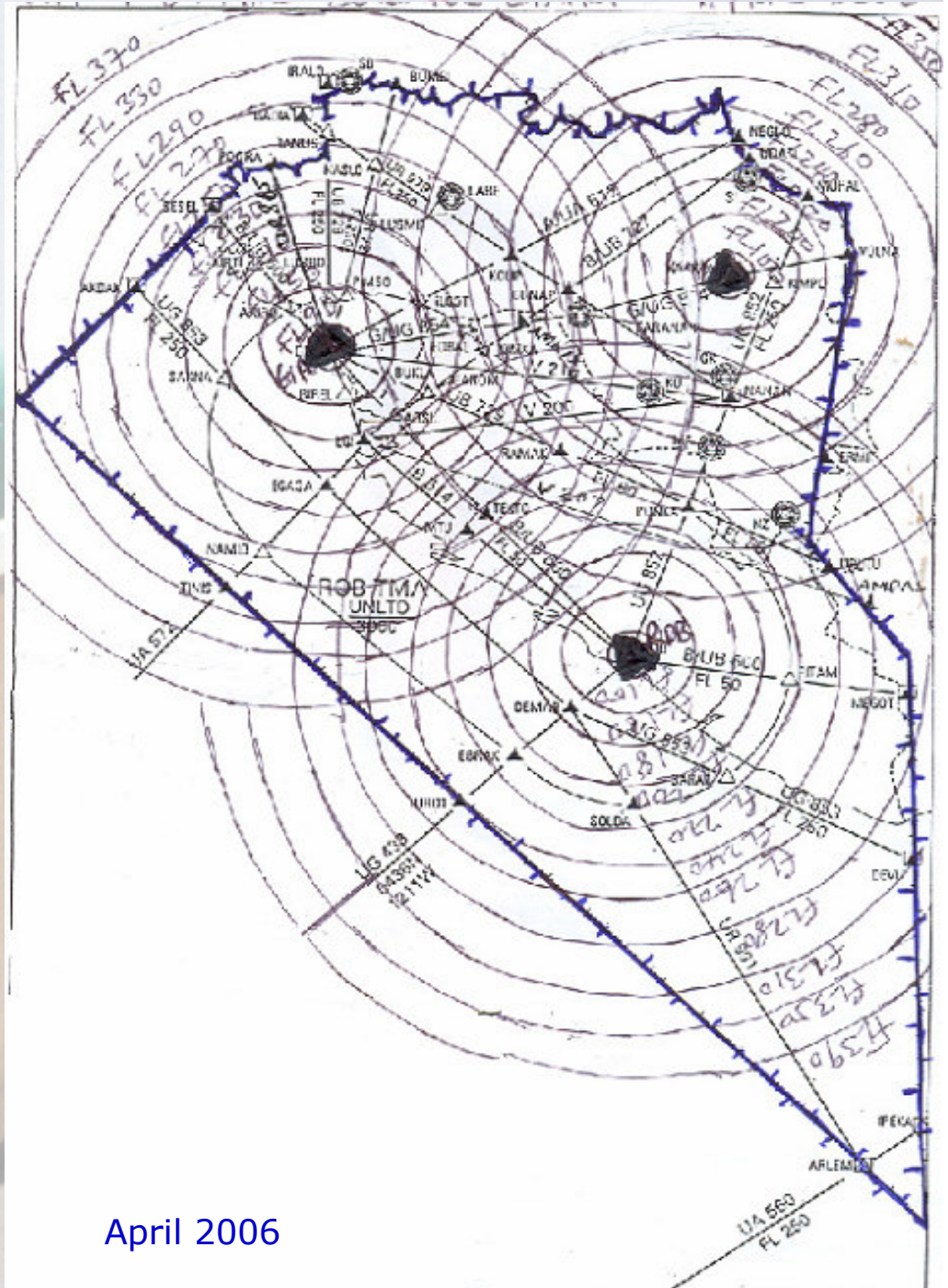
d) All sites are solar powered.

ROBERTS FIR VHF 128.1 MHz COVERAGE CHART

LEGEND

REGIONAL ATS ROUTES	—
NON REGIONAL ATS ROUTES	V 205 V 207
NON REGIONAL ATS ROUTES	V 210 V 200
COMPULSORY REGIONAL ATS REP. POINTS	▲
NON COMPULSORY REGIONAL ATS REP. POINTS	△

**Full VHF coverage for Roberts
FIR AIR SPACE.**



April 2006

2006 Communications Facilities

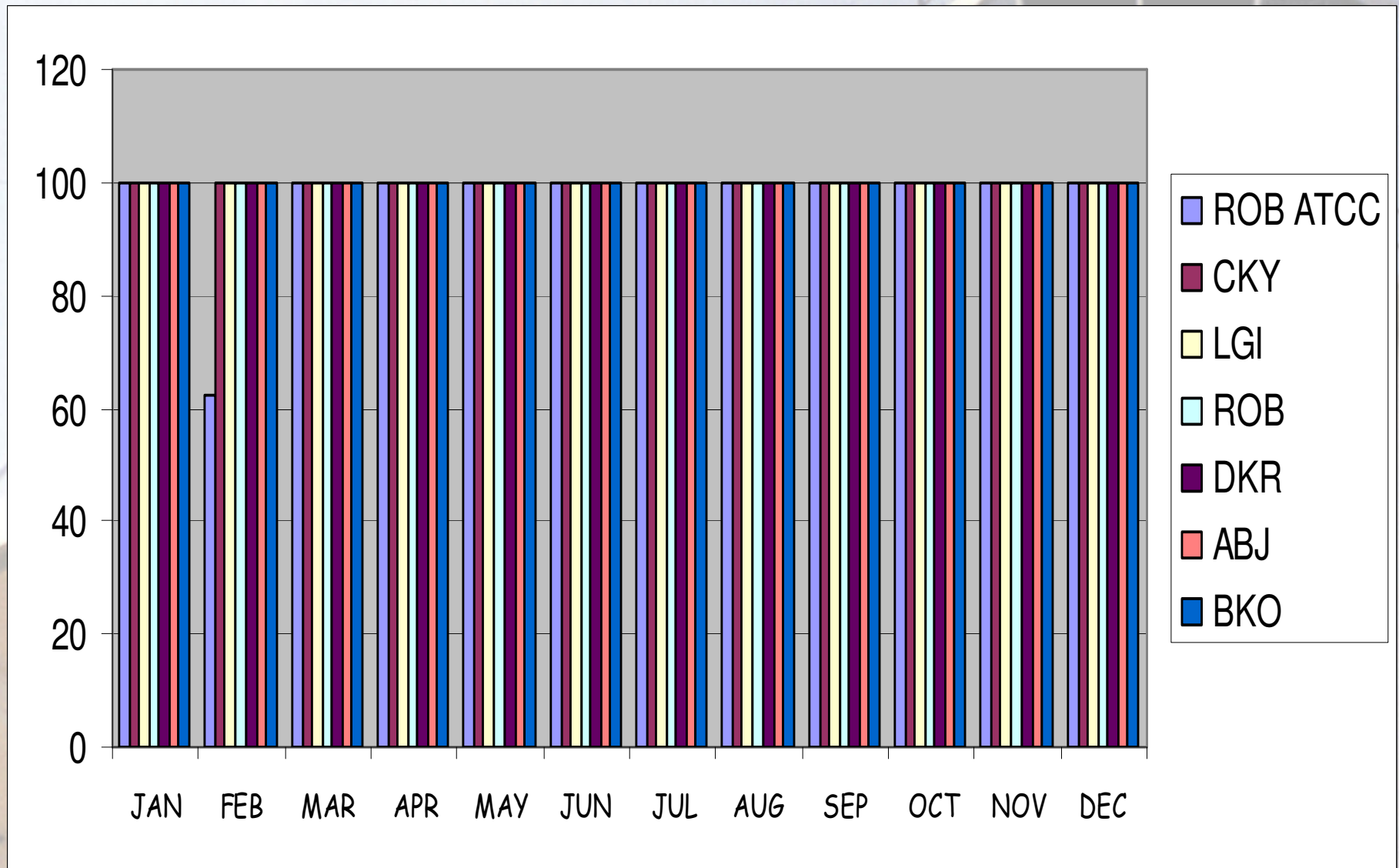
ATS/DS LINK AVAILABILITY STATISTICS (%)

MONTH	ROB ATCC	CKY	LGI	ROB	DKR	ABJ	BKO
JAN	100	100	100	100	100	100	100
FEB	62.35	100	100	100	100	100	100
MAR	100	100	100	100	100	100	100
APR	99.67	100	100	100	100	100	100
MAY	100	100	100	100	100	100	100
JUN	100	100	100	100	100	100	100
JUL	100	100	100	100	100	100	100
AUG	100	100	100	100	100	100	100
SEP	100	100	100	100	100	100	100
OCT	100	100	100	100	100	100	100
NOV	100	100	100	100	100	100	100
DEC	100	100	100	100	100	100	100
TOTAL	1,162.02	1200	1200	1200	1200	1200	1200
Average	96.83	100	100	100	100	100	100

NOTE: The low percentage of availability at the Roberts ATCC for the month of February was due to power failure. A total outage of 253Hrs (37.65%). For the month of April a total outage of 2Hrs (0.33%) due to noise on the satellite telephone system.

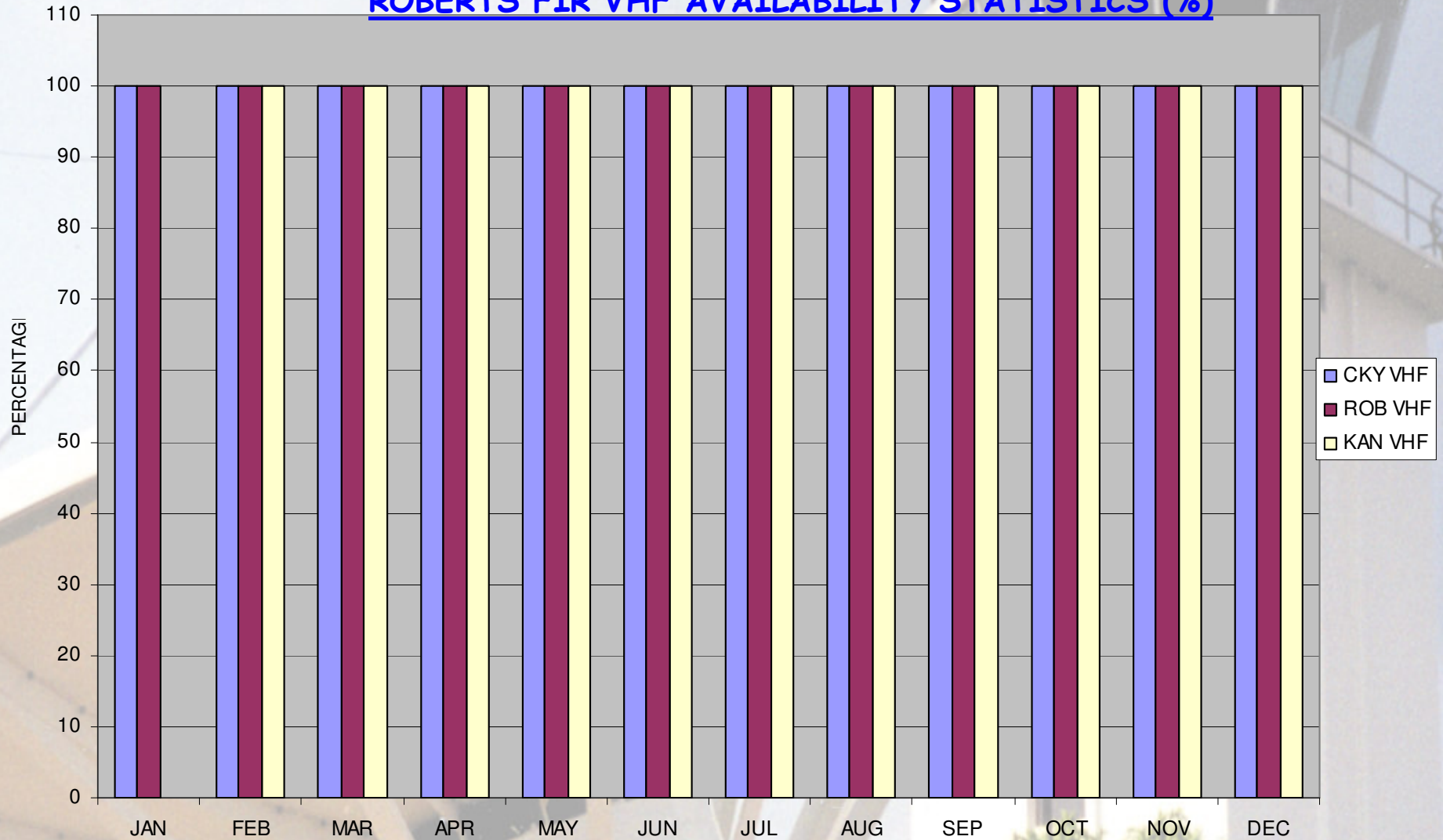
2006 COMMUNICATION FACILITIES

ATS/DS Link Availability statistics in percentage



2006 VHF/AM Performance

ROBERTS FIR VHF AVAILABILITY STATISTICS (%)



2006 AFTN TRAFFIC PERFORMANCE

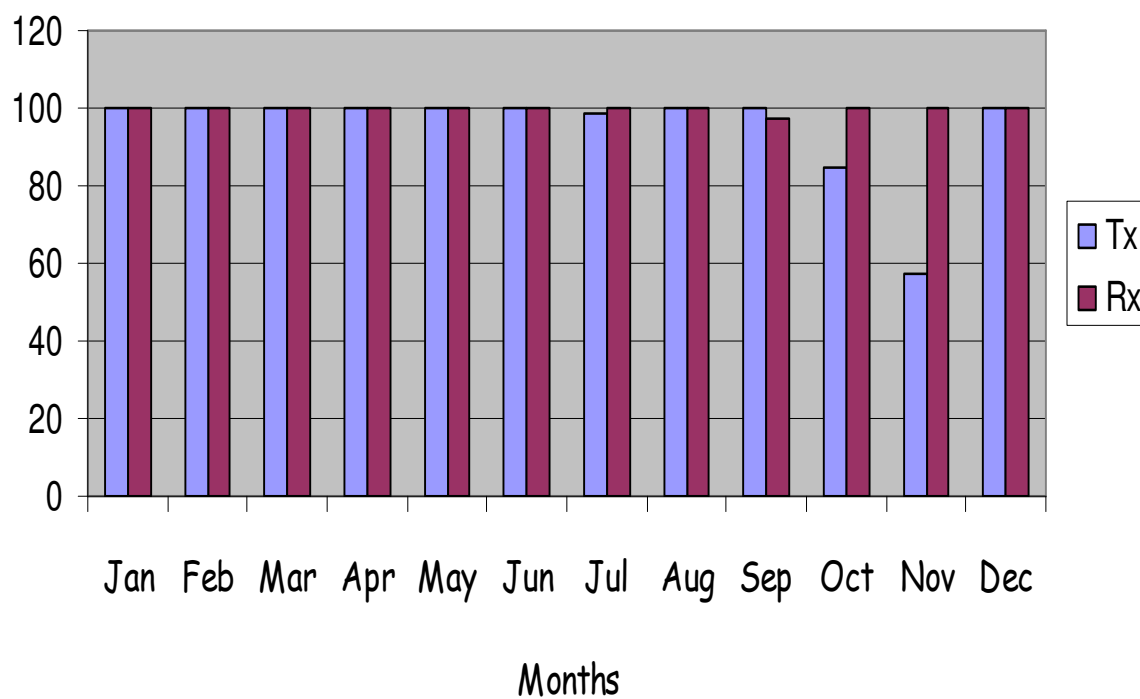
Robert Flight Information Region

Aeronautical Message Traffic Totals Dakar/Conakry/Dakar Circuit

Total number of DATA messages Tx AND Rx

Month	Tx	Rx
Jan	8983	46268
Feb	7285	41468
Mar	8012	45966
Apr	6969	44949
May	7501	46200
Jun	6503	42242
Jul	7503	48242
Aug	8285	43057
Sep	6653	37060
Oct	6856	44931
Nov	3545	15626
Dec	9844	44638
Total	1140.78	1197.22
AVG.	95.07	99.77

AFTN CIRCUIT AVAILABILITY IN PERCENTAGE



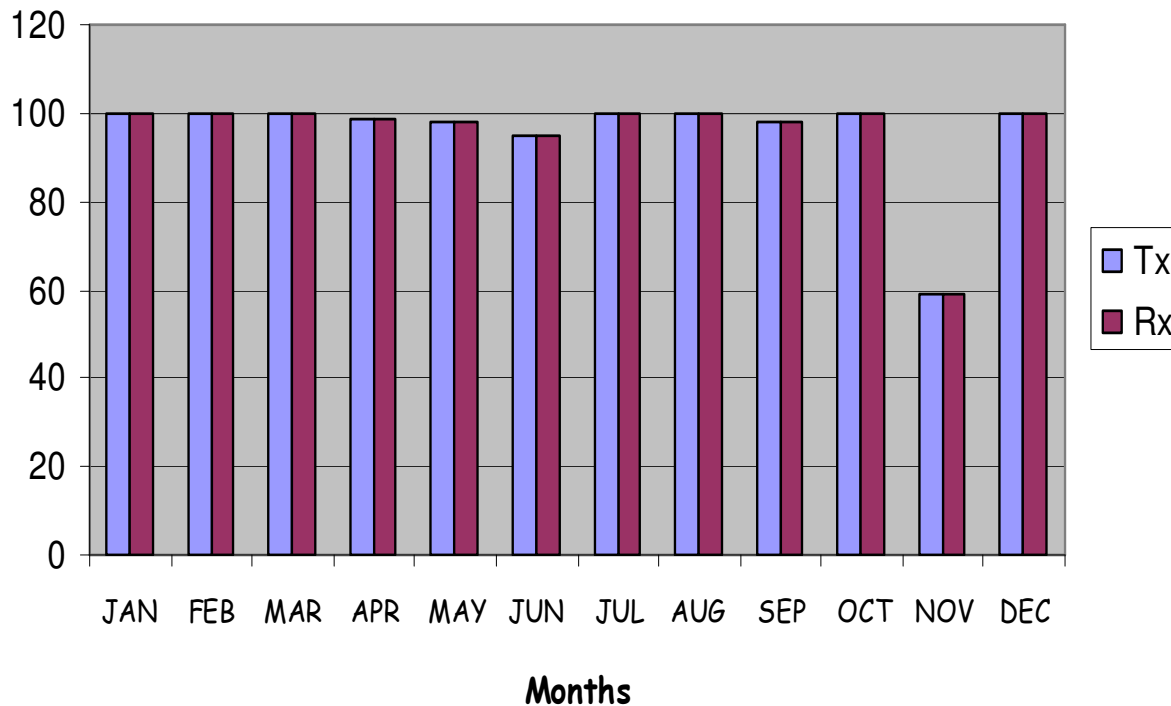
2006 AFTN TRAFFIC PERFORMANCE

Robert Flight Information Region

Aeronautical Message Traffic Total Conakry/Lungi/Conakry Circuit

Total number of DATA messages Tx AND Rx.

AFTN CIRCUIT AVAILABILITY IN PERCENTAGE



Month	Tx	Rx
JAN	6112	27411
FEB	6374	26022
MAR	5298	24465
APR	5664	24155
MAY	6123	25363
JUN	4790	20917
JUL	4928	26005
AUG	6203	21792
SEP	6136	19266
OCT	5591	20020
NOV	3177	10941
DEC	5323	23358
Total	65719	269715
Average	5477	22476

2006 AFTN TRAFFIC PERFORMANCE

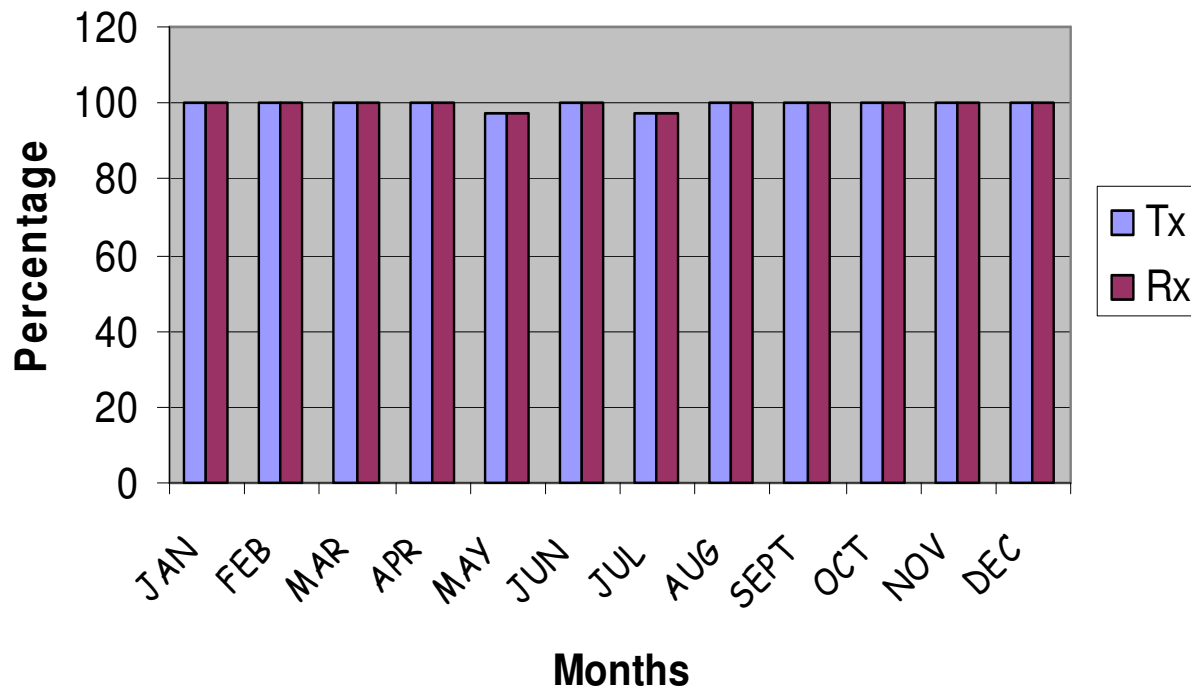
Robert Flight Information Region

Aeronautical Message Traffic Totals Conakry/Roberts/Conakry Circuit

Total number of DATA messages Tx AND Rx.

Month	Tx	Rx
JAN	6057	29361
FEB	4967	25264
MAR	4539	27790
APR	4352	27014
MAY	4717	29528
JUN	4159	26508
JUL	4252	27804
AUG	5383	23846
SEPT	4549	22102
OCT	4607	20877
NOV	4057	13159
DEC	5030	25859
Total	56669	299112
AVG.	4722,42	24926

AFTN CIRCUIT AVAILABILITY IN PERCENTAGE



2007 Communications Facilities Availability Statistics

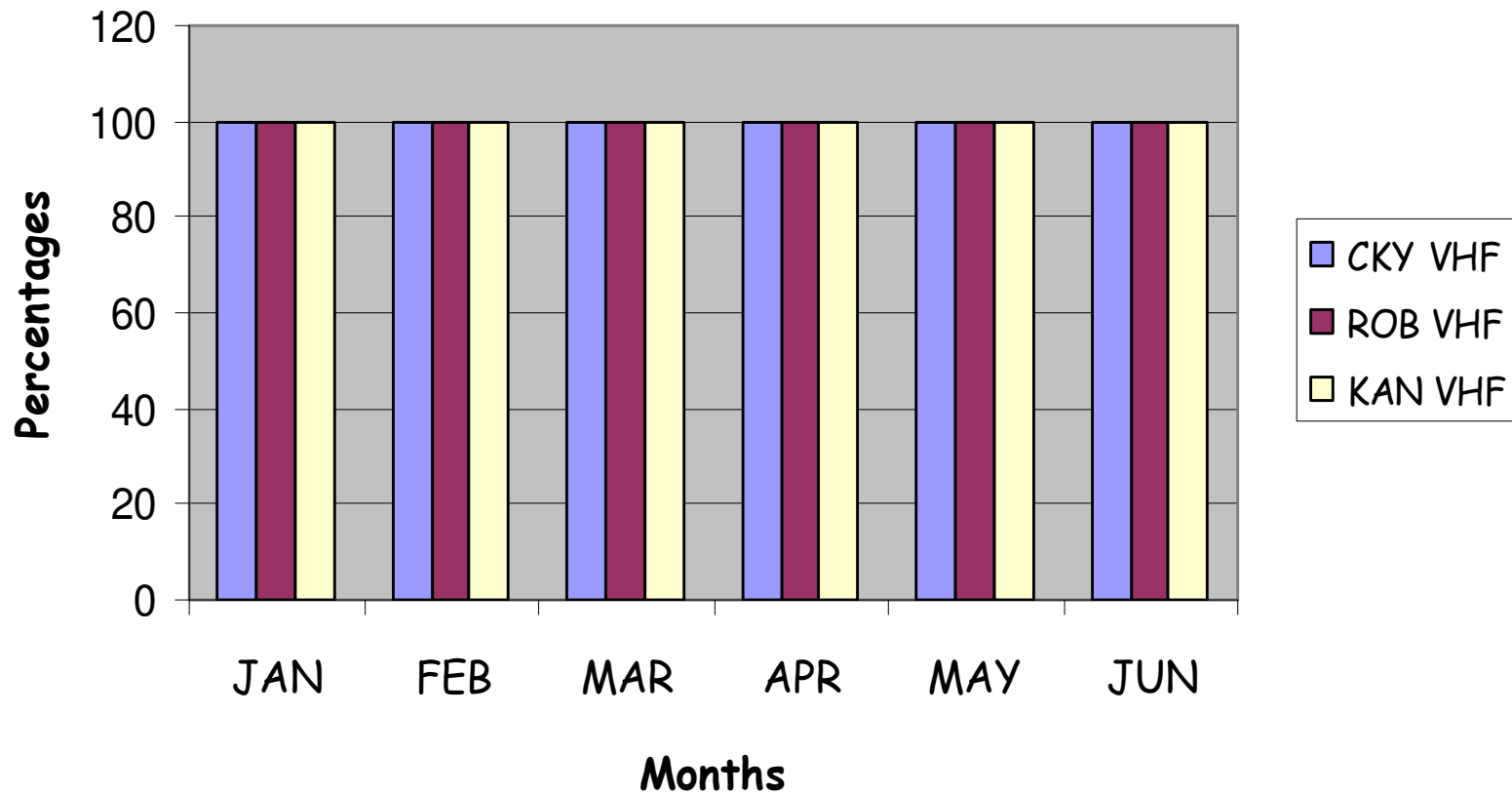
VHF AND ATS/DS LINK PERFORMANCE

YEAR 2007		VHF 128.1 MHz			ATS/DS SATELLITE TELEPHONE LINK						
		CKY	ROB	KAN	ATCC	CKY	ROB	KAN	DKR	ABJ	BKO
JAN	HR	744	744	744		744	744	744	744	744	744
	%	100	100	100	97.04	100	100	100	100	100	100
FEB	HR	672	672	672		672	672	672	672	672	672
	%	100	100	100	94.64	100	100	100	100	100	100
MAR	HR	744	744	744		744	744	744	744	744	744
	%	100	100	100	98.66	100	100	100	100	100	100
APR	HR	720	720	720		720	720	720	720	720	720
	%	100	100	100	100	100	100	100	100	100	100
MAY	HR	744	744	744		744	744	744	744	744	744
	%	100	100	100	96.64	100	100	100	100	100	100
JUN	HR	744	744	744		744	744	744	744	744	744
	%	100	100	100	94.35	100	100	100	100	100	100

NOTE: The low percentage of availability at the Roberts ATCC for the first half of 2007 was due to the crisis in Guinea during the months of January and February, VSAT antenna feed trouble shoot on the month of March coupled with power supply/inverter problem on May and the replacement of the solar batteries on June.

2007 VHF/AM PERFORMANCE

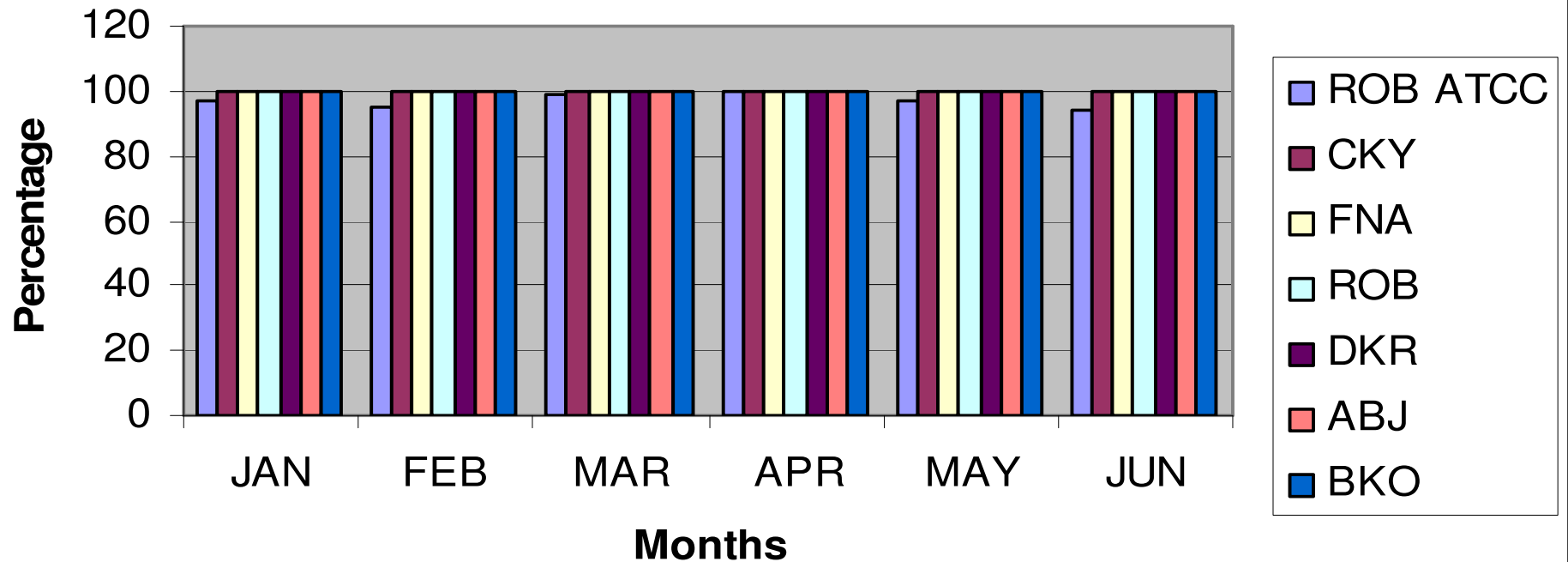
VHF Availability statistics in percentage for the 1st half of 2007



2007 COMMUNICATION FACILITIES

ATS/DS Link Availability statistics in percentage (January - June 07)

**ATS/DS LINK AVAILABILITY STATISTICS IN %
JAN - JUN 07.**

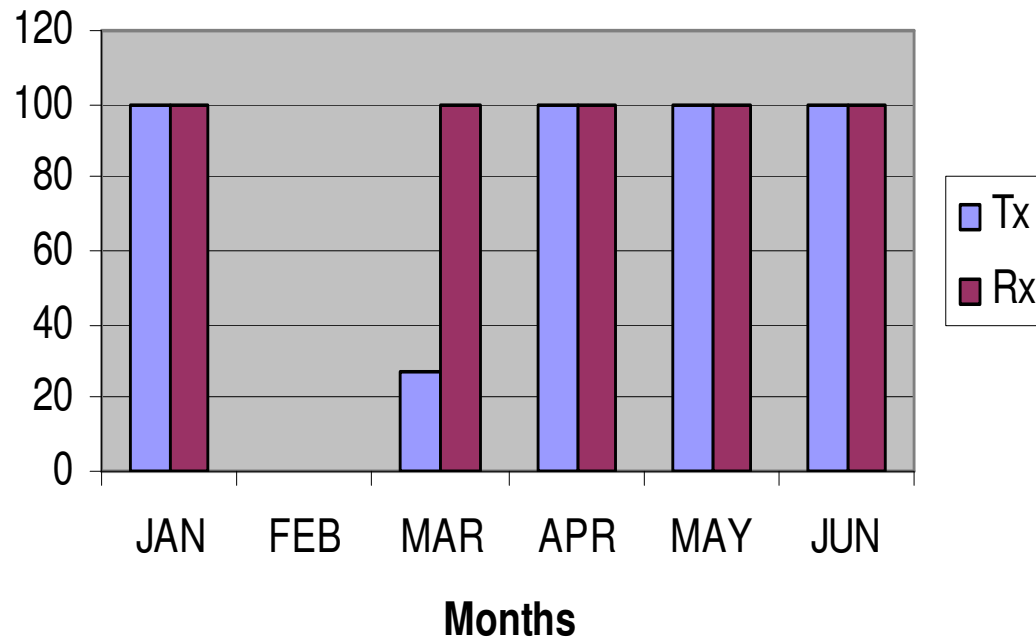


2007 AFTN TRAFFIC PERFORMANCE

Robert Flight Information Region

Aeronautical Message Traffic Total Dakar/Conakry/Dakar Circuit

AFTN CIRCUIT AVAILABILITY IN PERCENTAGE 1st HALF 2007



Total number of DATA messages Tx AND Rx.

Month	Tx	Rx
JAN	10 417	4 7377
FEB	0	0
MAR	1 589	9 211
APR	8 522	42 927
MAY	8 806	51 216
JUN	10 334	54 200
TOTAL	39 698	204 931
AVERAGE	6 616	34.155

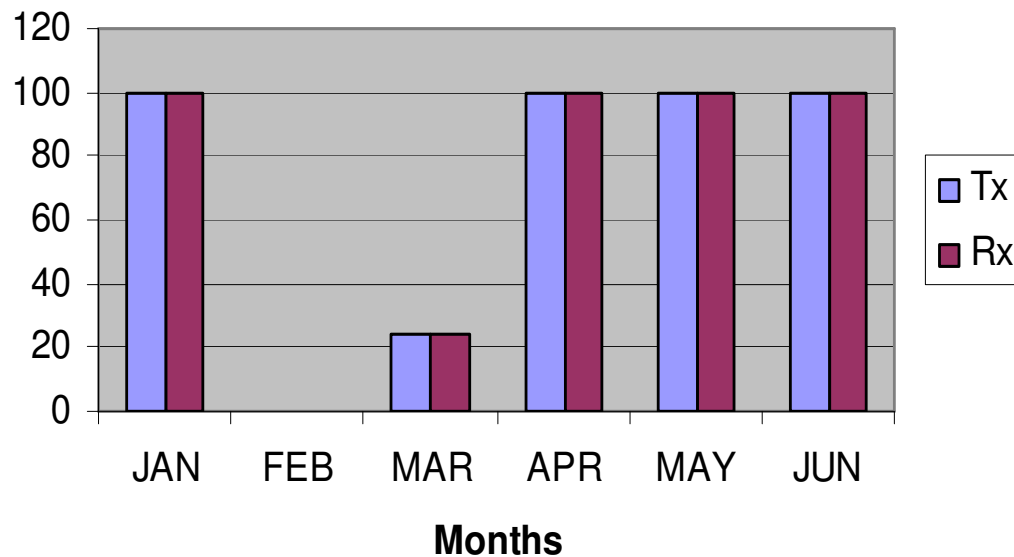
The network was down for the entire month of February 2007 for inverter/power problems.

2007 AFTN TRAFFIC PERFORMANCE

Robert Flight Information Region

Aeronautical Message Traffic Total Conakry/Lungi/Conakry Circuit

AFTN CIRCUIT AVAILABILITY IN PERCENTAGE 1st HALF 2007



Total number of DATA messages Tx AND Rx.

Month	Tx	Rx
JAN	5 013	47 377
FEB	0	0
MAR	1 254	3756
APR	5 821	16 450
MAY	5 212	16 980
JUN	6 900	15 801
TOTAL	24 200	74 398
AVERAGE	4 033	12 399

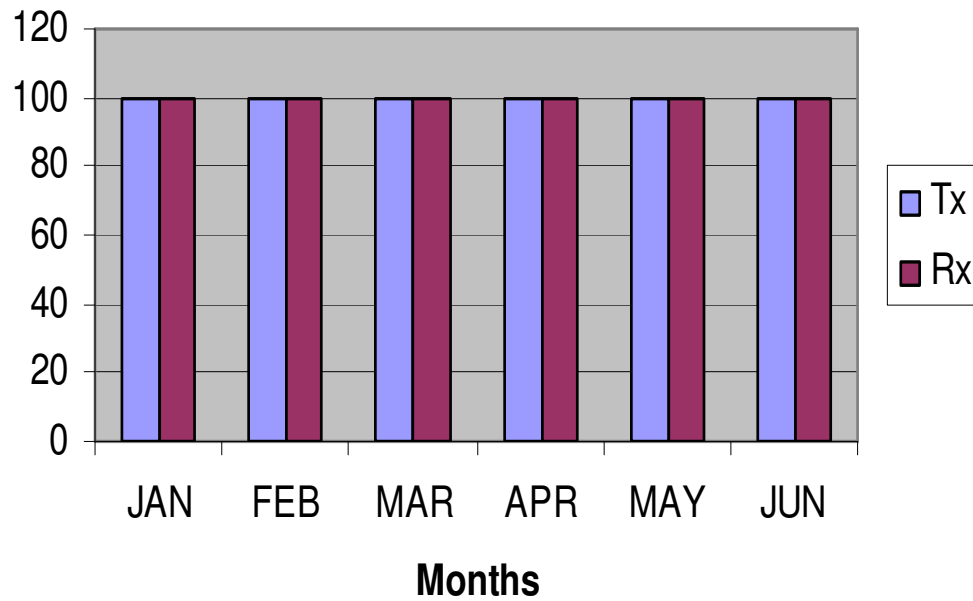
The network was down for the entire month of February 2007 for inverter/power problems.

2007 AFTN TRAFFIC PERFORMANCE

Robert Flight Information Region

Aeronautical Message Traffic Total Conakry/Roberts/Conakry Circuit

**AFTN CIRCUIT AVAILABILITY IN
PERCENTAGE 1st HALF 2007**



**Total number of DATA
messages Tx AND Rx.**

Month	Tx	Rx
JAN	4 613	26 796
FEB	2 758	4 494
MAR	4554	28 948
APR	4 287	18 742
MAY	4 247	26 369
JUN	4 931	28 366
Total	25 390	13 3715
Average	4 232	22 286