

Connectivity tests via Singapore

Default Oz-Europe route is via Singapore and 4×155 Mbps links (aggregated). This has the lowest RTT which is what most users want.

Testing Methology

iperf in TCP and UDP mode. In TCP mode trying various different window sizes. Most tests were short, 30-120 sec

Hosts

Host	Location
epvsi1-ext	Sydney
pkvsi1-ext	Parkes
cavsi1-ext	Narrabri
mpvsi1-ext	Mopra
Huygens	Netherlands

UDP Tests

Sydney → Netherlands (9/1/2007)

Nominal Rate	Achieved Average	Packet Loss
10 Mbps	9.9 Mbps	1[=%=]
50 Mbps	50 Mbps	0[=%=]
100 Mbps	100 Mbps	0.02[=%=]
120 Mbps	120 Mbps	0.25[=%=]
130 Mbps	126 Mbps	3.5[=%=]
200 Mbps	136 Mbps	33[=%=]

Sydney → Netherlands (10/1/2007)

Nominal Rate	Achieved Average	Packet Loss
100 Mbps	100 Mbps	0.03[=%=]
120 Mbps	118 Mbps	1.4[=%=]

Observatories → Netherlands (10/1/2007)

Site	Nominal Rate	Achieved Average	Packet Loss
Parkes	100 Mbps	100 Mbps	0.000[=%=]
Parkes	120 Mbps	118 Mbps	1.6[=%=]
Narrabri	100 Mbps	100 Mbps	0.37[=%=]
Narrabri	120 Mbps	117 Mbps	2.5[=%=]

Site	Nominal Rate	Achieved Average	Packet Loss
Mopra	100 Mbps	100 Mbps	0.39[=%=]
Mopra	120 Mbps	116 Mbps	3.5[=%=]

Simultaneous Tests (Multiple UDP streams from observatories, 11/1/2007)

Running three iperf sessions simultaneously (120sec each)

Sites	Nominal Rate	Achieved Average	Packet Loss
Parkes+Mopra	100 Mbps	100/100 Mbps	0.17/0.17[=%=]
Parkes+Narrabri	100 Mbps	100/100 Mbps	0.3/0.3[=%=]
Sydney,Sydney,Sydney	100 Mbps	49/48/46 Mbps	51/51/54[=%=]
Mopra+Narrabri+Parkes	100 Mbps	47/47/47 Mbps	53/53/53[=%=]

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It turns out links are shared on a hashing algorithm based on IP address and port numbers. This is deterministic but unlucky choice of port number may mean two streams are forced onto the same 155 Mbps link even though this leads to asymmetric use.

Testing with careful choice of port number...

Sites	Port	Nominal Rate	Achieved Average	Packet Loss
ATCA+Mopra	52102/52100	100 Mbps	100/100 Mbps	0.39/0.39[=%=]

TCP tests

These tests with iperf with various window sizes. Given the relatively slow ramp up time the average and ~95 percentile values are given (eyeballed).

Round trip time is 311 msec.

60 second tests

Sites	TCP window	Average	Peak
Sydney	2 MB	14 Mbps	18 Mbps
Sydney	1 MB	16 Mbps	20 Mbps
Sydney	800 kB	12 Mbps	14 Mbps
JIVE	4 MB	23 Mbps	24 Mbps
JIVE	5 MB	40 Mbps	43 Mbps
JIVE	2 MB	43 Mbps	48 Mbps
JIVE	1 MB	19 Mbps	20 Mbps
JIVE	3 MB	56 Mbps	65 Mbps
Sydney	2 MB	29 Mbps	36 Mbps
Sydney	3 MB	44 Mbps	60 Mbps

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