

# VOIP Handset Testing WaveClient Report

October 07, 2009  
11:15:22

## Device Tested:

*AP Model::*  
*AP SW Version::*  
*Client Model::*  
*Client SW Version::*



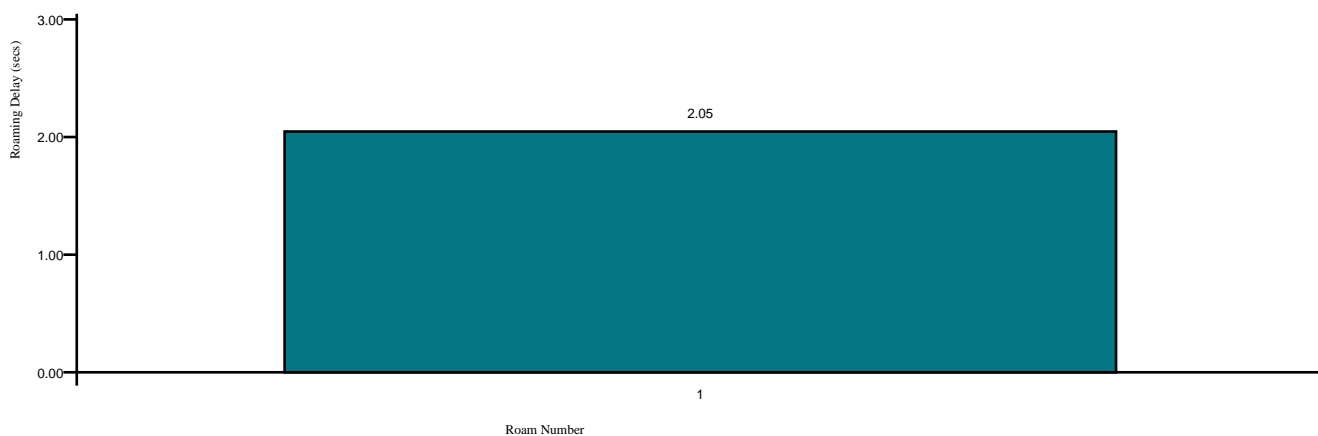
## Overview

WaveClient allows wireless device manufacturers to create the actual network eco-system surrounding the device including specific mixes of equipment, applications and traffic conditions in the lab and measure how devices will coexist, how well a system will scale, and how consistently traffic will be prioritized.

Note: The results shown in the report are only of the clients and flows that successfully connected. All client and flows that did not make it through the connection process are not executed in the test and hence excluded from the report.

## Result Summary

Roaming Delay Chart

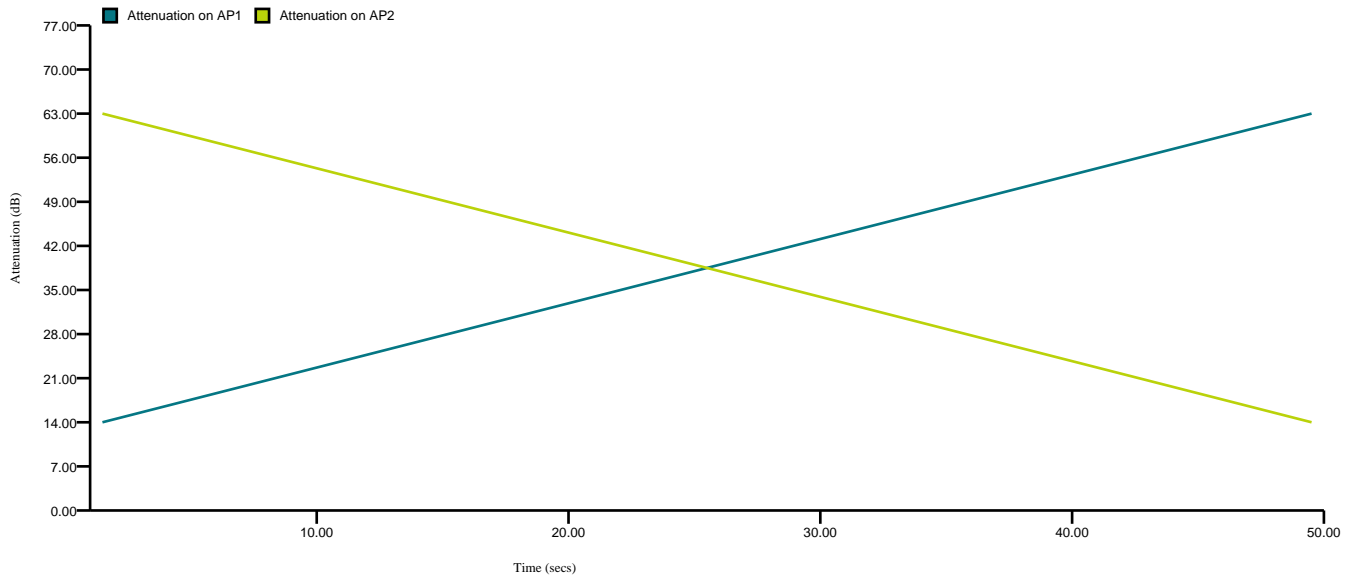


The Table below shows the performance of the client Flows:

Flow Name	Num Flows	Avg Roam Delay(secs)	% Down Time	ILOAD (Kbps)	OLOAD (Kbps)	Fwd Rate (Kbps)	Avg Latency (msec)	Jitter (msec)	% Packet Loss
clientFlow1	1	2.0	0.4	-	-	-	-	-	-

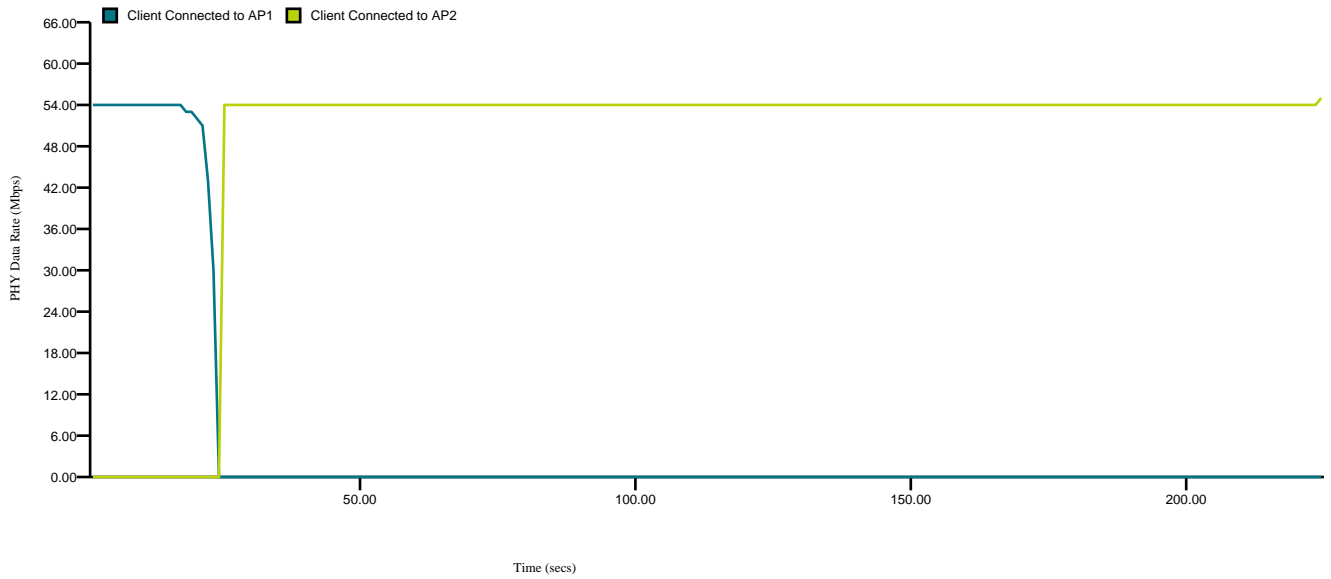
The graph below shows how the attenuation on AP1 and AP2 are changed over time.

Attenuation on APs Vs Time



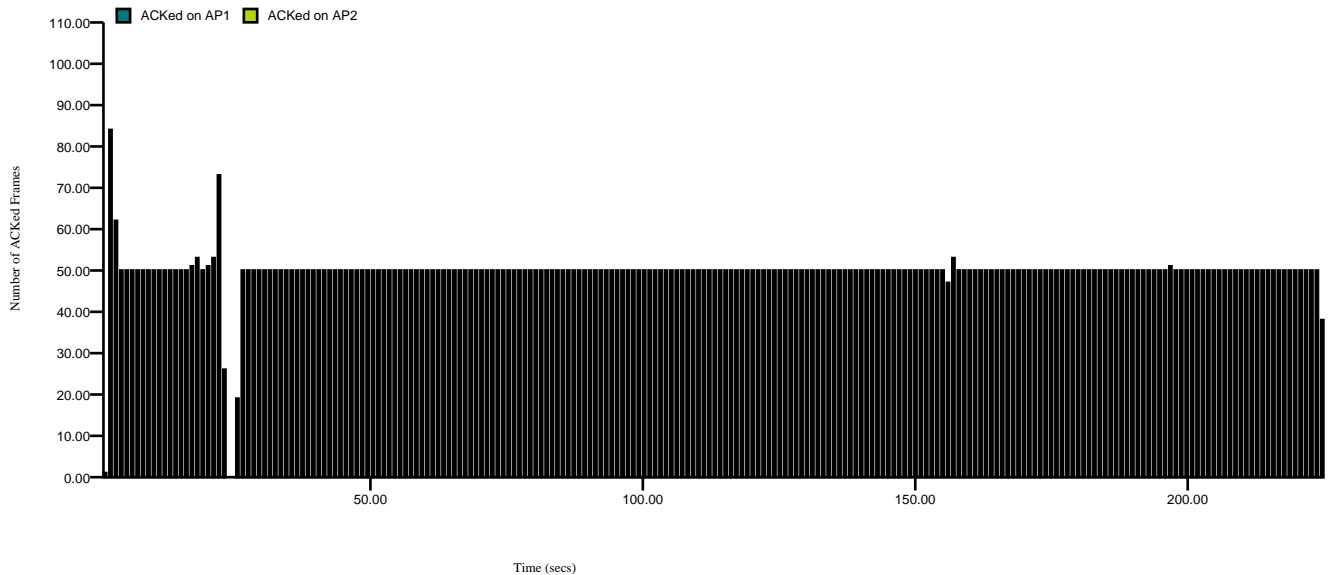
The graph show the Average PHY Data rate over time (as attenuation changes) of packets transmitted by the client to AP1 and AP2 in 1 sec intervals. This graph gives the user insight into the rate adaptation methodology of the client as the client roams between APs

### Client PHY Data Rates Vs Time

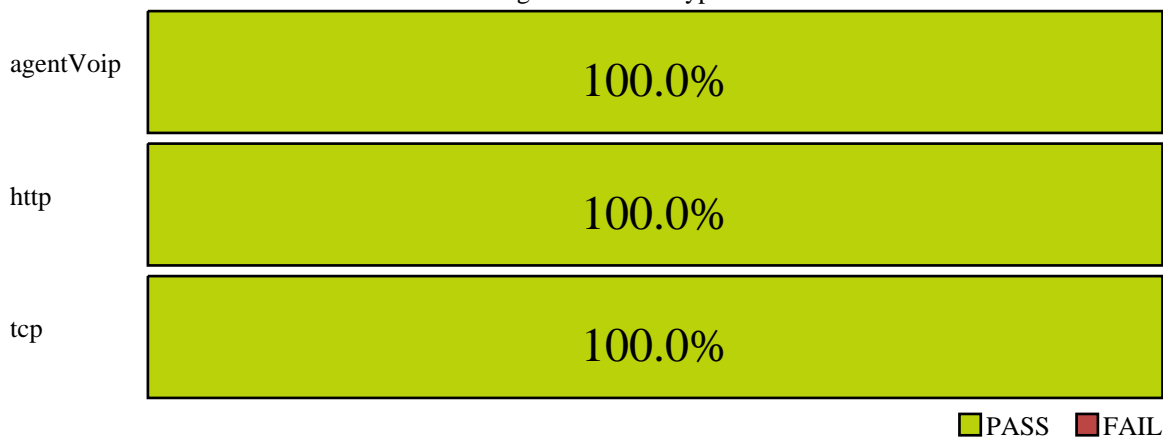


The Graph below shows over time the number of packets transmitted by the client that were successfully ACKed by the AP in 1 sec intervals. As the attenuation increases on AP1 and decreases on AP2, the time on this graph for which there were no ACKs seen will represent the down time of the client during the roam.

### ACKed Frames Vs Time



PASS/FAIL Percentages of Traffic Types that met SLA



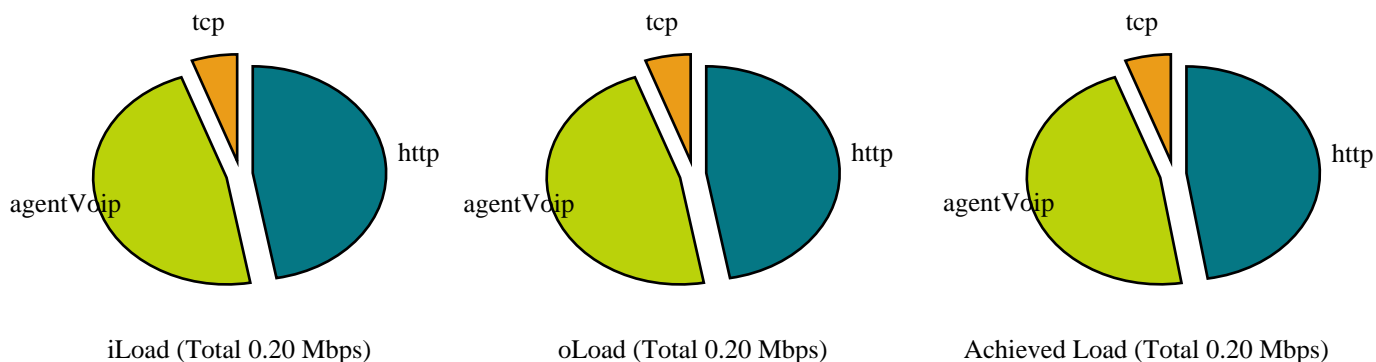
The Table below shows the percentages of Clients/Flows that connected in the test. Only the results of the clients/flows that connected will appear in the report

Type	Value
Successful Client Connections	5 out of 5 ( 100 % )
Successful TCP/HTTP/FTP Connections	2 out of 2 ( 100 % )
Successful ARP Exchanges	1 out of 1 ( 100 % )

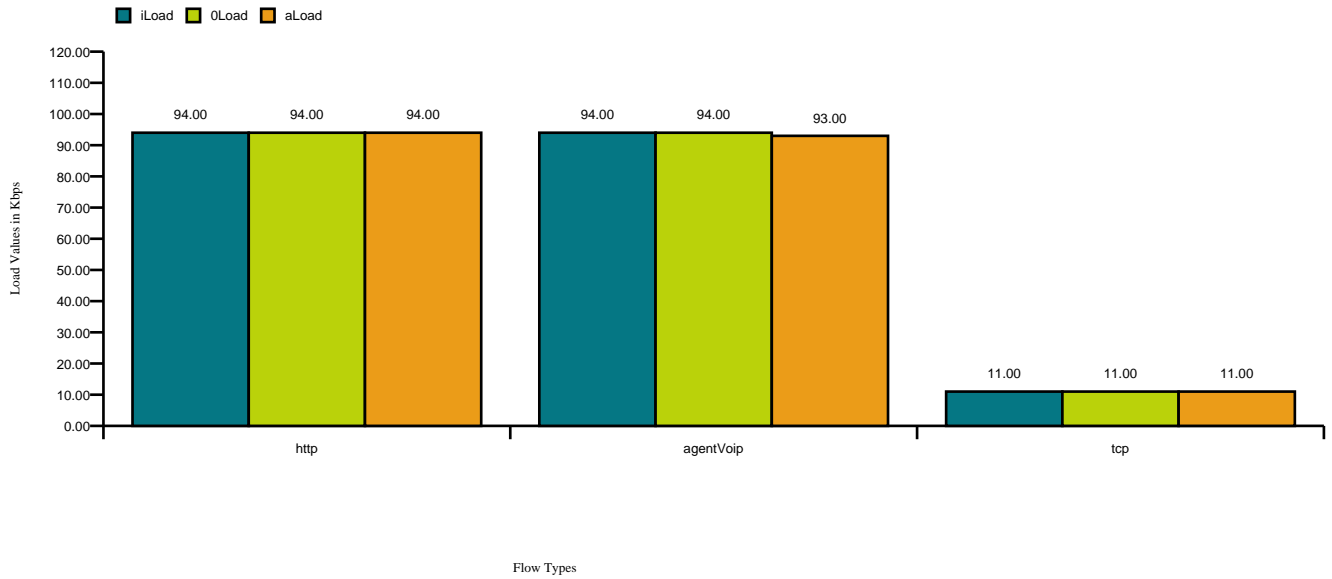
The summary table below shows the per flow average performance measurements of each traffic type

Flow Type	Num Flows	Layer7 Results	ILOAD (Kbps)	OLOAD (Kbps)	Fwd Rate (Kbps)	Latency (msec)	Jitter (msec)	% Packet Loss
agentVoip	1	MOS Score: 4.18, R-Value: 84.52	94.4	94.4	93.2	15.3	0.2	1.3
http	1	Goodput - 82.42 Kbps	94.0	94.0	-	-	-	0.0
tcp	1	Goodput - 8.64 Kbps	11.0	11.0	-	-	-	0.0

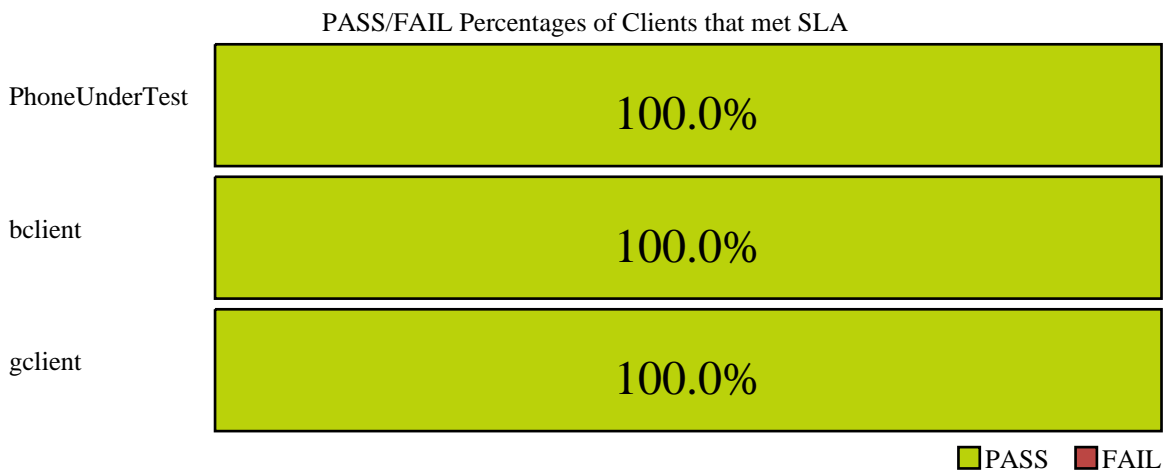
The Total Intended Load is 0.20 Mbps, offered load is 0.20 Mbps and achieved load is 0.20 Mbps



### iLoad, oLoad and aLoad per Traffic Type



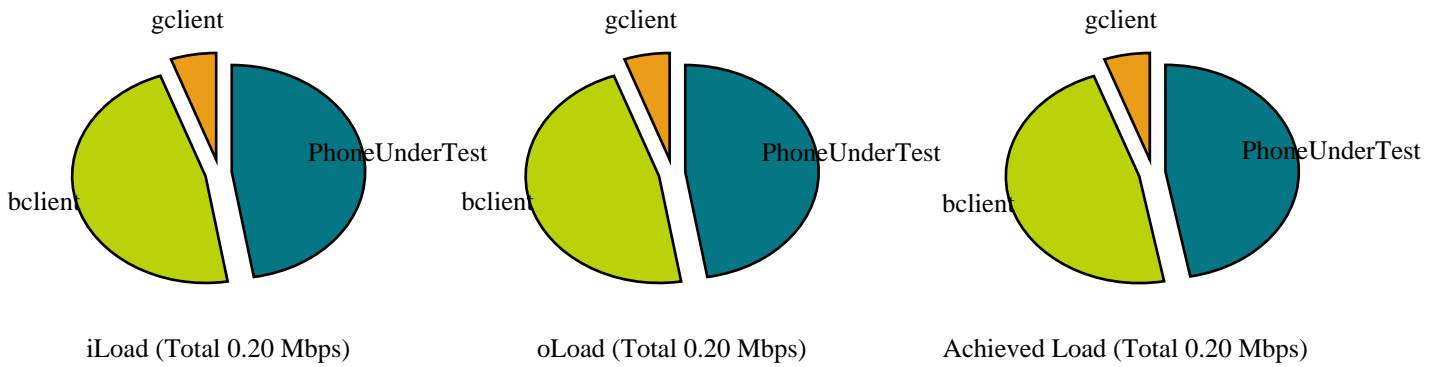
### Per Client Type Results



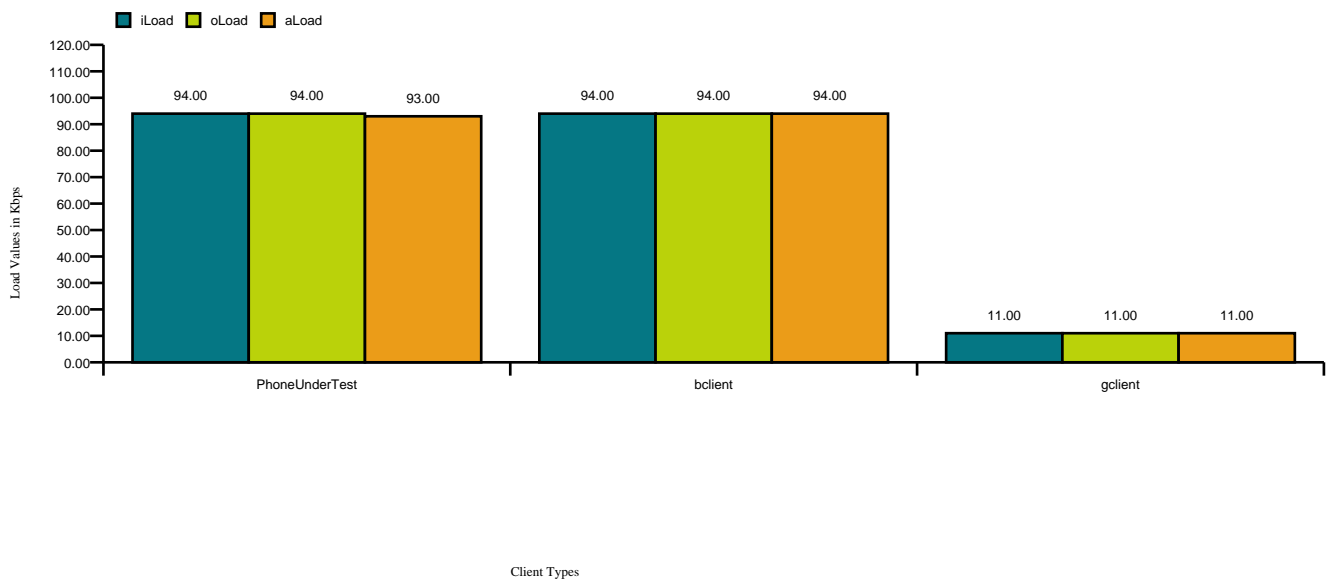
The Table below shows the percentage of Clients of each client type that satisfied the SLA

Note: For a client to meet SLA all flows on the client need to meet their SLA

Client Type	Number of Clients	Flow Types	% of Clients that met SLA
PhoneUnderTest	1	AgentVOIP,	100
bclient	1	HTTP,	100
gclient	1	TCP,	100



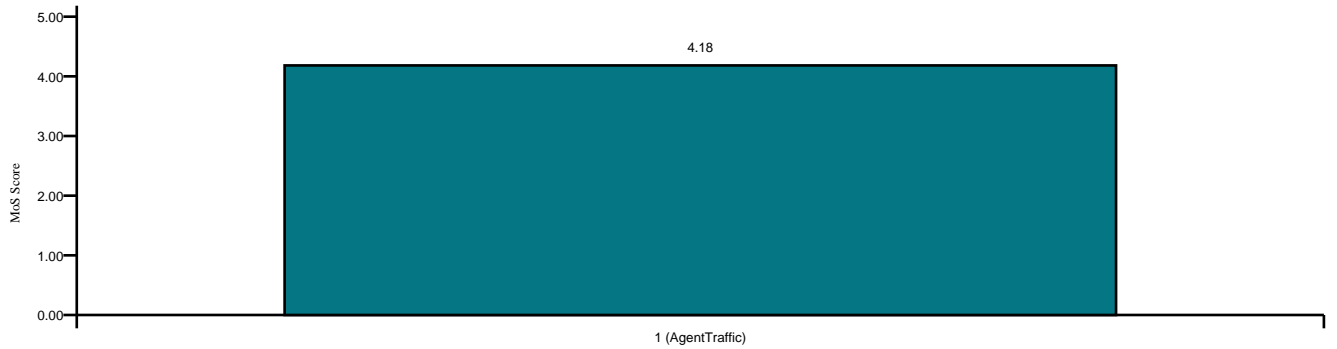
iLoad, oLoad and aLoad per Client Type



## Graphs

The Graphs below show the per traffic flow performance measurements of each traffic type

### MoS Score for all agentVoip flows

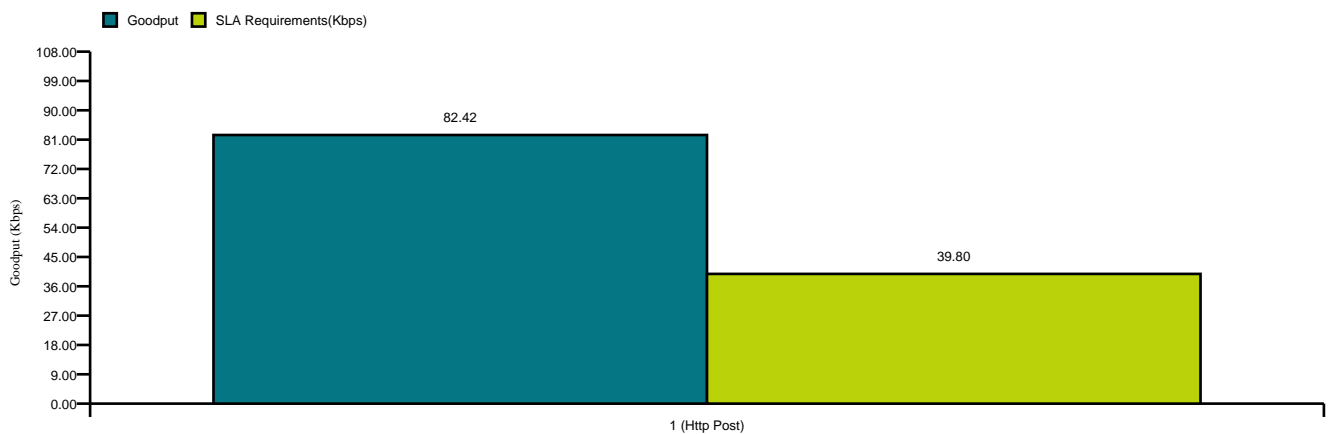


Flow Numbers

The following table shows more information about each flow of this traffic type for debugging purposes.

Flow Num	IP	MAC	Port	Network	Direction
1	192.168.1.186 to 192.168.1.185	00:11:22:33:ff:03 to xx:xx:xx:xx:xx:xx	192.168.1.14_card1_port1 to Virtual_WaveAgent_Port	None, 00:00:00:00:00:00	loopback

### HTTP Goodput

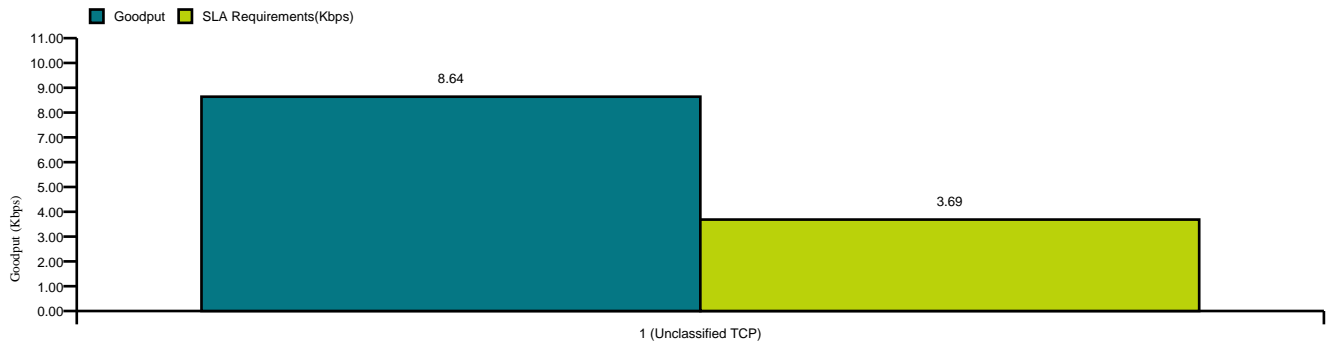


Flow Numbers

The following table shows more information about each flow of this traffic type for debugging purposes.

Flow Num	IP	MAC	Port	Network	Direction
1	192.168.10.10 to 192.168.3.200	00:02:01:a8:0a:0a to 00:01:01:a8:03:c8	192.168.1.14_card2_port1 to 192.168.1.14_card1_port1	veriwave2, 00:18:74:8a:03:00	uplink

TCP Goodput



Flow Numbers

The following table shows more information about each flow of this traffic type for debugging purposes.

Flow Num	IP	MAC	Port	Network	Direction
1	192.168.8.200 to 192.168.2.10	00:01:01:a8:08:c8 to 00:03:01:a8:02:0a	192.168.1.14_card1_port1 to 192.168.1.14_card3_port1	veriwave2, 00:18:74:8a:13:10	downlink

## Client Analysis Parameters

The table below shows the input parameters for Client Analysis

Client Flw Name	Src IP/MAC	Src Port	Dst IP/MAC	Dst Port	Metric
clientFlow1	00:16:fe:fd:4a:9b	192.168.1.14_card4_port1	00:11:22:33:ff:03	192.168.1.14_card5_port1	Roaming Delay

## Test Parameters

The table below shows the input parameters for the test

Parameter	Value
Trial Duration	225 secs
Settle Time	1 secs
Aging Time	0 secs
Reconnect Clients each Trial	True
Number of Trials	1 Trial(s)
Search Mode	None
Client Load Per Port	50
Continue Test On Fail Run	False

The table below shows the Intended Client Mix configured in the test. The actual percentages of clients and the types of traffic in the test may change if some of the clients/flows fail to connect.

Client Type	Traffic Profiles	Num Clients
PhoneUnderTest	AgentTraffic	1
gclient	Unclassified TCP	1
bclient	Http Post	1

The table below shows SLA Specifications for the Traffic Flows in the Test

Traffic profile	SLA Metrics and Requirement
Unclassified TCP	perLoad = 50 % (5.0 Kbps)
AgentTraffic	slaMode = R-value , value = 78 ,
Http Post	perLoad = 50 % (47.0 Kbps)

## Access Point Information

The following table shows the SUT details. The received signal strength indication (RSSI) from the SUT is sampled on each port at the start of each trial and averaged over all of the trials.

Port Name	Channel	BSSID	SSID	Min RSSI	Avg RSSI	Max RSSI
192.168.1.14_card2_port1	11	00:18:74:8A:03:00	veriwave2	-17.0 dBm	-17.0 dBm	-17.0 dBm
192.168.1.14_card3_port1	1	00:18:74:8A:13:10	veriwave2	-28.0 dBm	-28.0 dBm	-28.0 dBm

RSSI values should be between -25 dBm and -35 dBm. If the RSSI is not in this range, modify the external attenuation to bring it into this range.

## Other Information

Results Directory      C:\Program Files\VeriWave\WaveClient\Results\20091007-111009  
 WaveQoE Version      2.0-WT-3.6, 2009.10.06.10  
 WaveTest Version      3.6.1, 2009.07.28.07