

University WiMiX Report

November 06, 2007
10:40:46

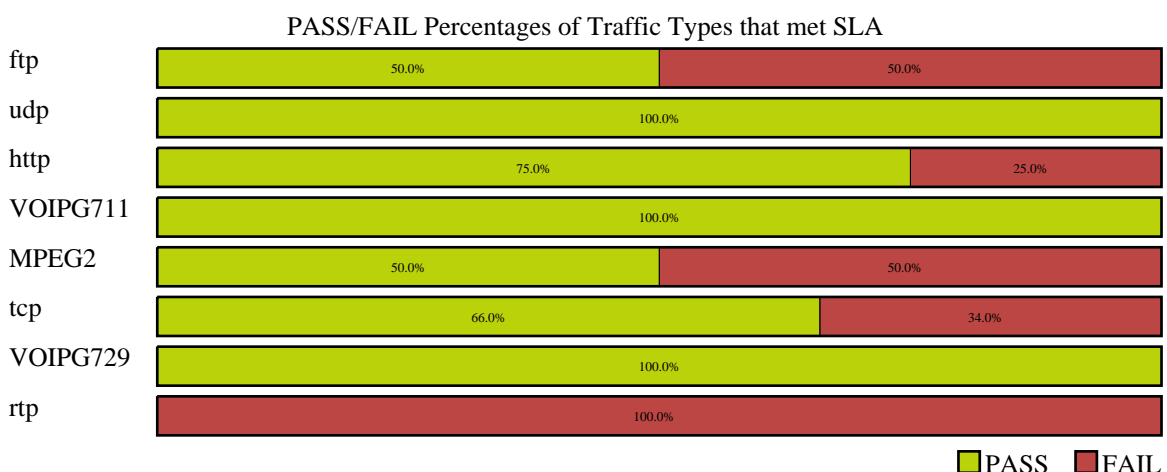
Device Tested:
AP Model:
AP SW Version:
WLAN Switch Model:
WLAN Switch Version:



Overview

The WiMix Real-World Deployment Test accurately replicates the complex interaction of clients, servers and traffic profiles in wireless LANs. By creating usage profiles and traffic mixtures that were found to be representative in various network environments, the test measures and reports key application layer metrics that affect end-user Quality of Experience. The test also reports if the Service Level Agreement criteria set by the user for the different application layer traffic types have been met. The real-world networks replicated include: health-care, education, airports, warehouses, retail, hot spots, and service provider managed services. Each deployment model is characterized by a mix of clients, servers, client locations and behavior, traffic mix and other characteristics. These clients and servers can be configured to use different security schemes, run various higher layer applications, and utilize different QoS functions of the network. Users may also create their own application and client mixes if so desired.

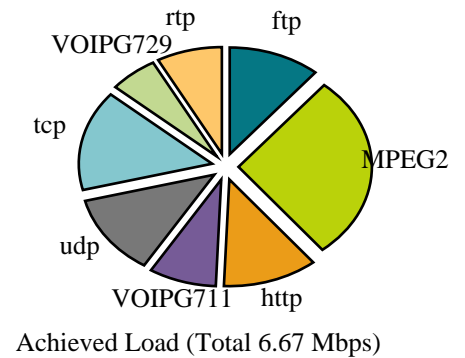
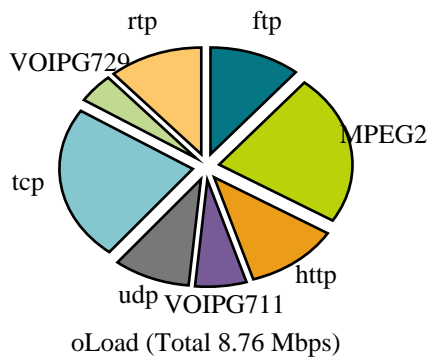
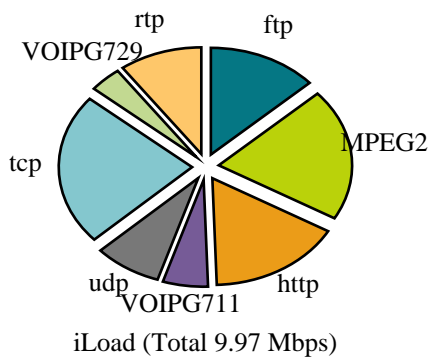
Result Summary



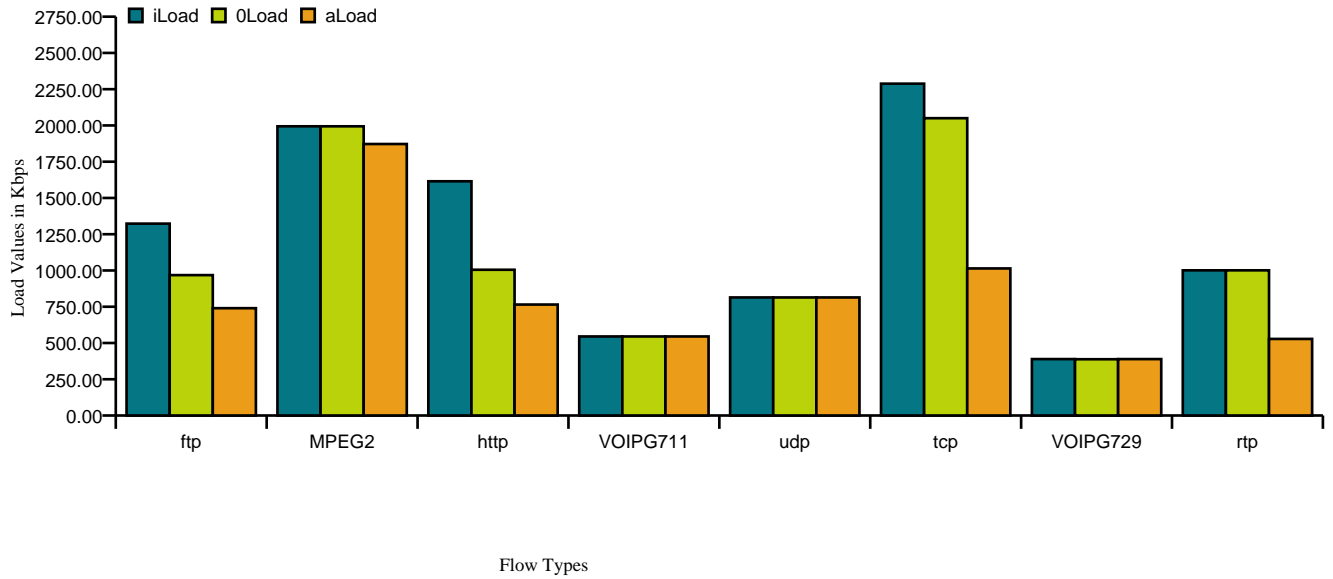
The summary table below shows the per flow average performance measurements of each traffic type

Flow Type	Num Flows	Layer7 Results	ILOAD (Kbps)	OLOAD (Kbps)	Fwd Rate (Kbps)	Latency (msec)	Jitter (msec)	% Packet Loss
VOIPG711	6	MOS Score: 4.19, R-Value: 84.69	90.9	90.9	90.9	52.7	1.6	0.0
VOIPG729	10	MOS Score - 4.04, R-Value: 80.33	38.9	38.9	38.9	53.3	1.7	0.0
MPEG2	2	MDI Score - 25.68 msecs :7.33	996.9	996.9	936.0	106.3	2.7	7.3
ftp	2	File Transfer Time: 50.75 secs, Goodput: 370.2 Kbps	661.4	483.6	-	-	-	5.9
http	4	Goodput - 191.33 Kbps	403.7	251.3	-	-	-	9.5
tcp	6	Goodput - 169.05 Kbps	381.3	341.6	-	-	-	16.1
udp	4	-	203.5	203.5	203.5	53.1	1.7	0.0
rtp	3	-	333.6	333.5	176.0	374.1	7.0	48.7

The Total Intended Load is 9.97 Mbps, offered load is 8.76 Mbps and achieved load is 6.67 Mbps



iLoad, oLoad and aLoad per Traffic Type



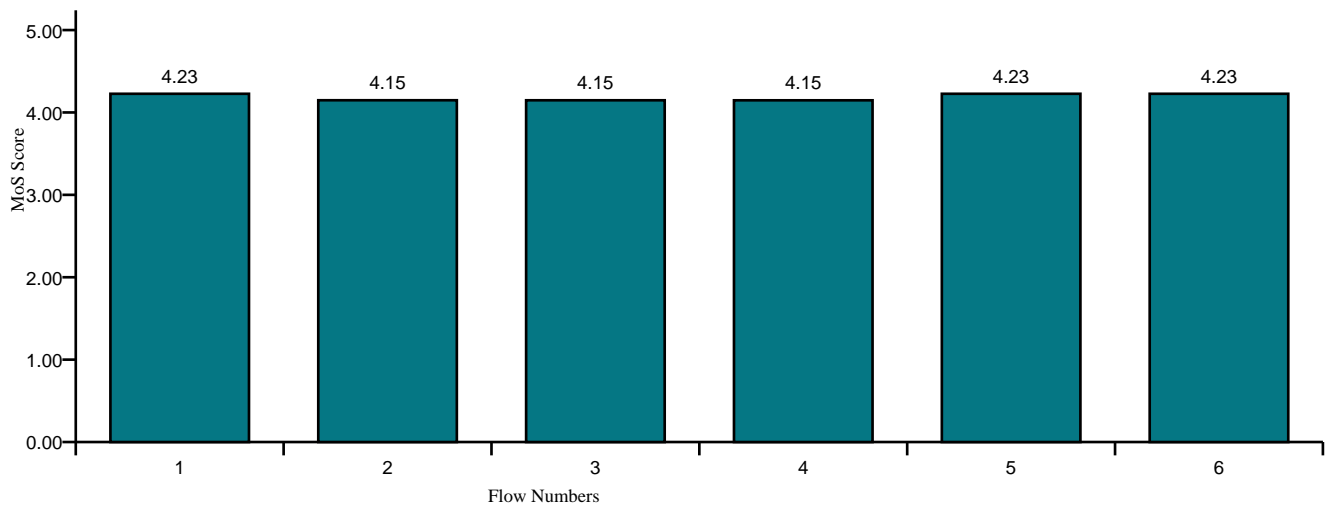
Test Topology

The test topology is shown below. Traffic is transmitted in the direction of the arrows. The test client port identifiers and IP addresses are indicated in the boxes, together with the security mode and channel number for WLAN clients

Graphs

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

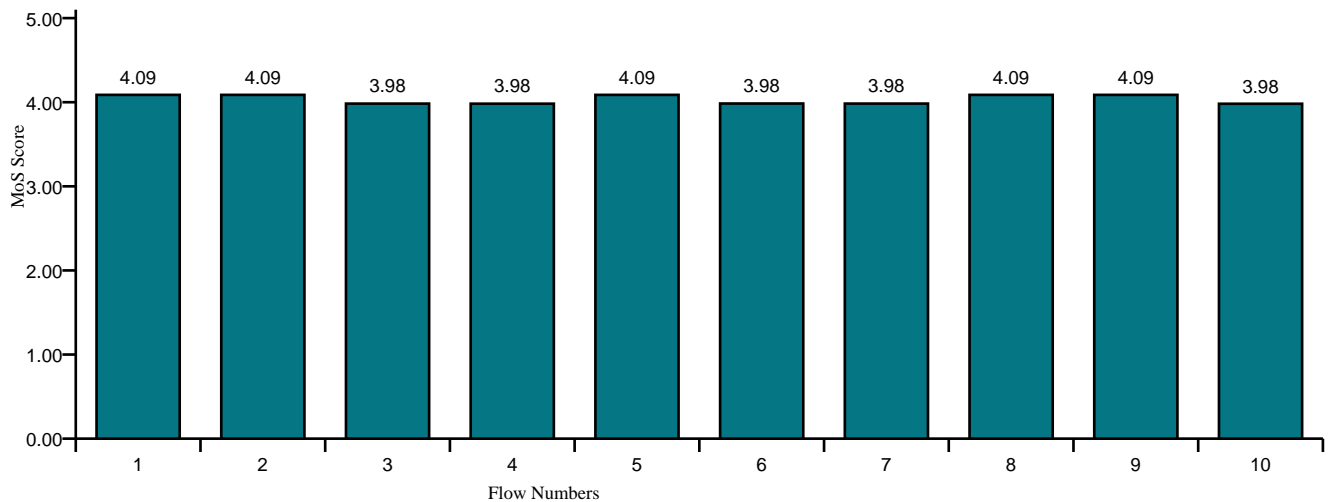
MoS Score for all G711 flows



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

Flow Num	IP	MAC	Port	Network	Direction
1	172.16.203.39 to 172.16.1.200	00:02:00:5c:00:00 to 00:01:00:10:01:c8	wt-tga-15-26_port2 to wt-tga-15-26_port1	vw_open, 00:18:74:89:fa:40	Uplink
2	172.16.1.200 to 172.16.203.28	00:01:00:10:01:c8 to 00:02:00:5a:00:00	wt-tga-15-26_port1 to wt-tga-15-26_port2	vw_open, 00:18:74:89:fa:40	Downlink
3	172.16.1.200 to 172.16.203.35	00:01:00:10:01:c8 to 00:02:00:5b:00:00	wt-tga-15-26_port1 to wt-tga-15-26_port2	vw_open, 00:18:74:89:fa:40	Downlink
4	172.16.1.200 to 172.16.203.39	00:01:00:10:01:c8 to 00:02:00:5c:00:00	wt-tga-15-26_port1 to wt-tga-15-26_port2	vw_open, 00:18:74:89:fa:40	Downlink
5	172.16.203.28 to 172.16.1.200	00:02:00:5a:00:00 to 00:01:00:10:01:c8	wt-tga-15-26_port2 to wt-tga-15-26_port1	vw_open, 00:18:74:89:fa:40	Uplink
6	172.16.203.35 to 172.16.1.200	00:02:00:5b:00:00 to 00:01:00:10:01:c8	wt-tga-15-26_port2 to wt-tga-15-26_port1	vw_open, 00:18:74:89:fa:40	Uplink

MoS Score for all G729 flows

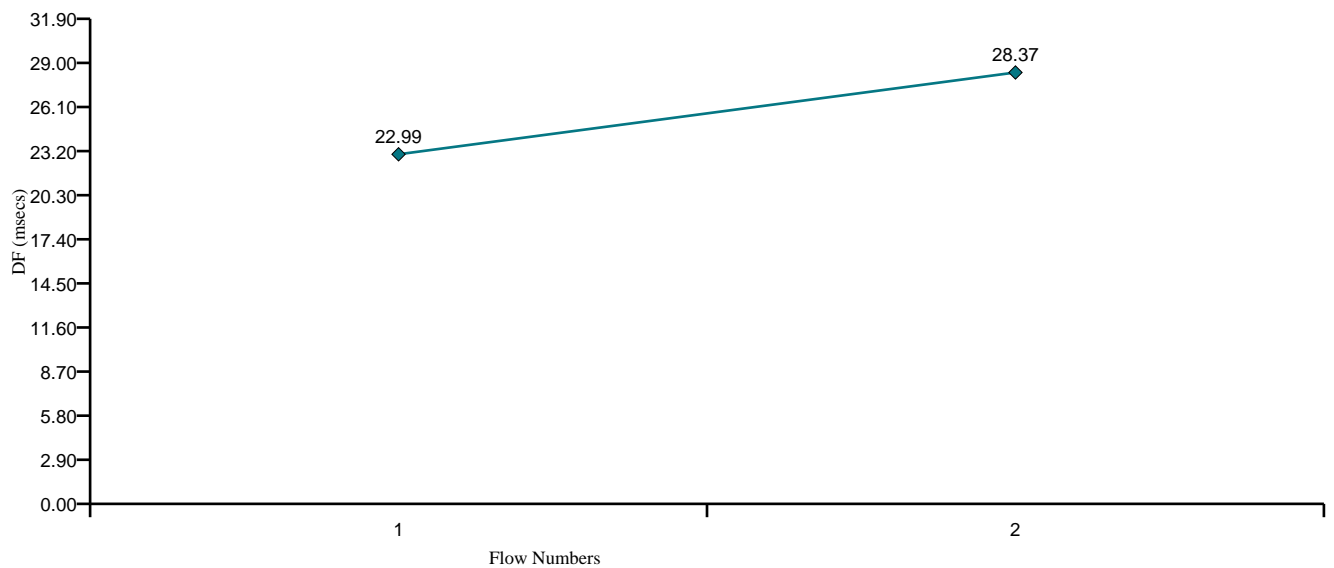


The following table shows more information about each flow of this traffic type for debugging purposes.

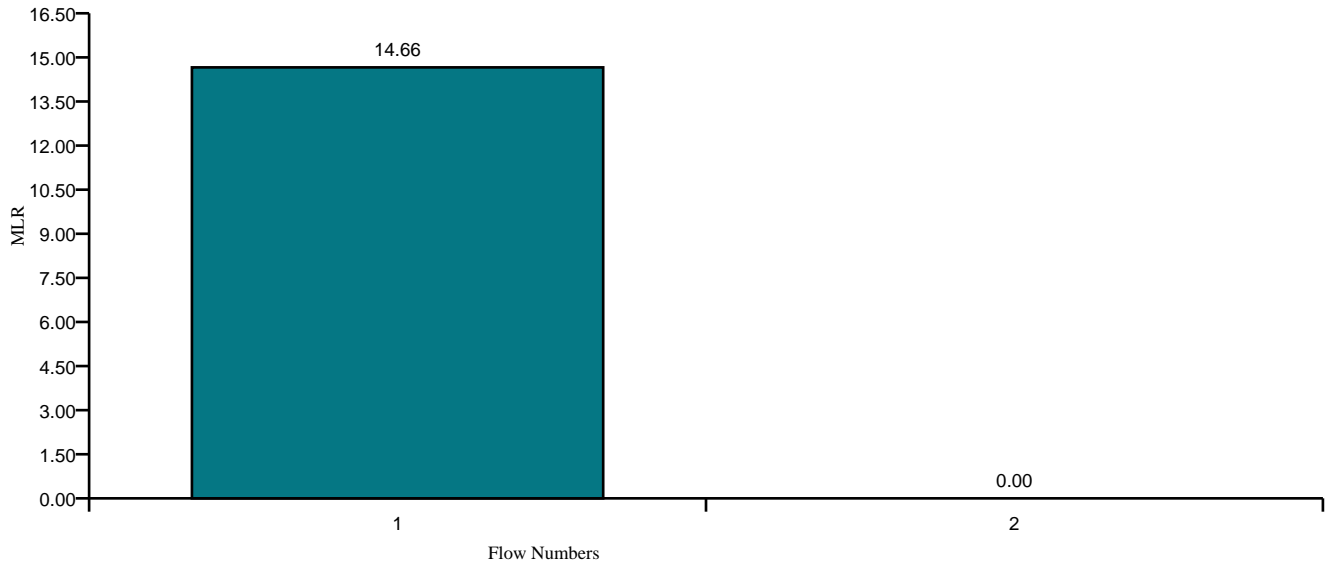
Flow Num	IP	MAC	Port	Network	Direction
1	172.16.203.51 to 172.16.1.200	00:02:00:5d:00:00 to 00:01:00:10:01:c8	wt-tga-15-26_port2 to wt-tga-15-26_port1	vw_open, 00:18:74:89:fa:40	Uplink
2	172.16.203.66 to 172.16.1.200	00:02:00:60:00:00 to 00:01:00:10:01:c8	wt-tga-15-26_port2 to wt-tga-15-26_port1	vw_open, 00:18:74:89:fa:40	Uplink

Flow Num	IP	MAC	Port	Network	Direction
3	172.16.1.200 to 172.16.203.62	00:01:00:10:01:c8 to 00:02:00:5f:00:00	wt-tga-15-26_port1 to wt-tga-15-26_port2	vw_open, 00:18:74:89:fa:40	Downlink
4	172.16.1.200 to 172.16.203.66	00:01:00:10:01:c8 to 00:02:00:60:00:00	wt-tga-15-26_port1 to wt-tga-15-26_port2	vw_open, 00:18:74:89:fa:40	Downlink
5	172.16.203.56 to 172.16.1.200	00:02:00:5e:00:00 to 00:01:00:10:01:c8	wt-tga-15-26_port2 to wt-tga-15-26_port1	vw_open, 00:18:74:89:fa:40	Uplink
6	172.16.1.200 to 172.16.203.51	00:01:00:10:01:c8 to 00:02:00:5d:00:00	wt-tga-15-26_port1 to wt-tga-15-26_port2	vw_open, 00:18:74:89:fa:40	Downlink
7	172.16.1.200 to 172.16.203.56	00:01:00:10:01:c8 to 00:02:00:5e:00:00	wt-tga-15-26_port1 to wt-tga-15-26_port2	vw_open, 00:18:74:89:fa:40	Downlink
8	172.16.203.62 to 172.16.1.200	00:02:00:5f:00:00 to 00:01:00:10:01:c8	wt-tga-15-26_port2 to wt-tga-15-26_port1	vw_open, 00:18:74:89:fa:40	Uplink
9	172.16.203.71 to 172.16.1.200	00:02:00:61:00:00 to 00:01:00:10:01:c8	wt-tga-15-26_port2 to wt-tga-15-26_port1	vw_open, 00:18:74:89:fa:40	Uplink
10	172.16.1.200 to 172.16.203.71	00:01:00:10:01:c8 to 00:02:00:61:00:00	wt-tga-15-26_port1 to wt-tga-15-26_port2	vw_open, 00:18:74:89:fa:40	Downlink

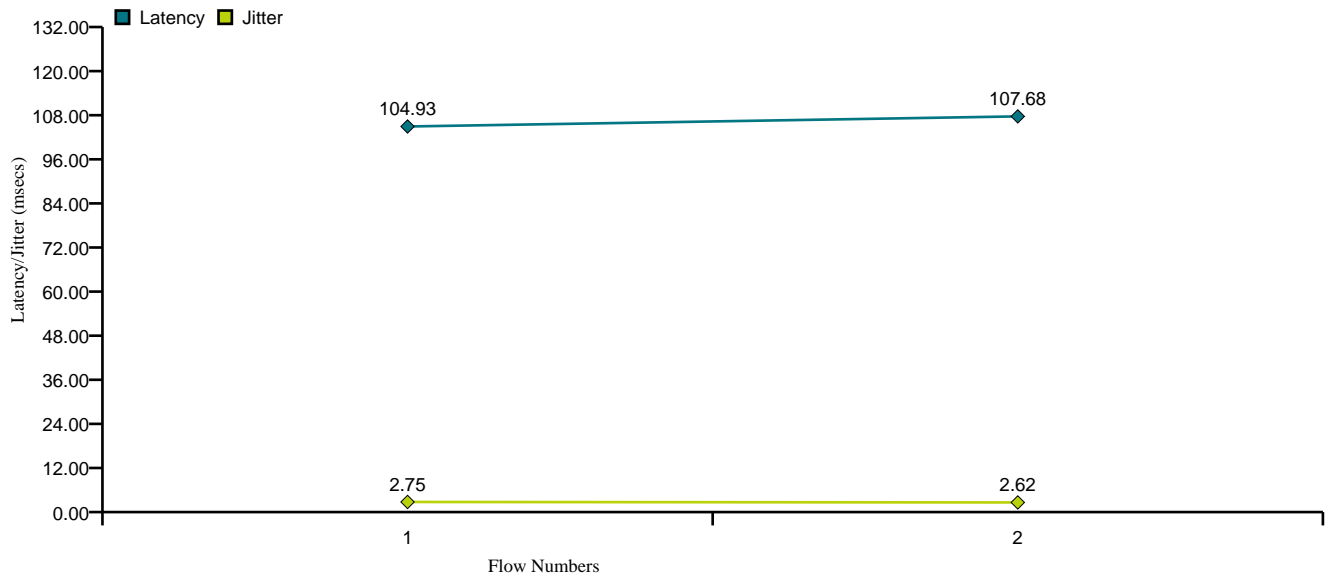
Delay Factor for MPEG2 flows



Media Loss Ratio (MLR) for MPEG2 Flows



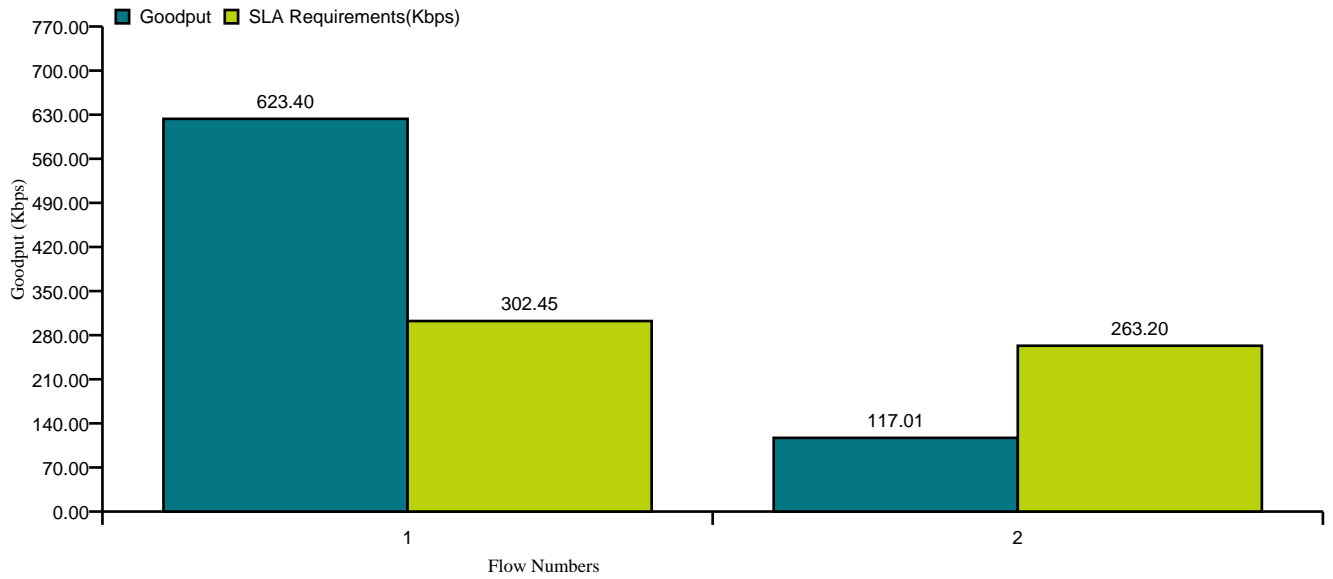
Latency and Jitter for MPEG2 flows



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

Flow Num	IP	MAC	Port	Network	Direction
1	172.16.6.200 to 224.1.1.1	00:01:00:10:06:c8 to 01:00:5e:01:01:01	wt-tga-15-26_port1 to All Wireless Ports	vw_open, 00:18:74:89:fa:40	Multicast
2	172.16.5.200 to 172.16.203.149	00:01:00:10:05:c8 to 00:02:00:6e:00:00	wt-tga-15-26_port1 to wt-tga-15-26_port2	vw_open, 00:18:74:89:fa:40	Downlink

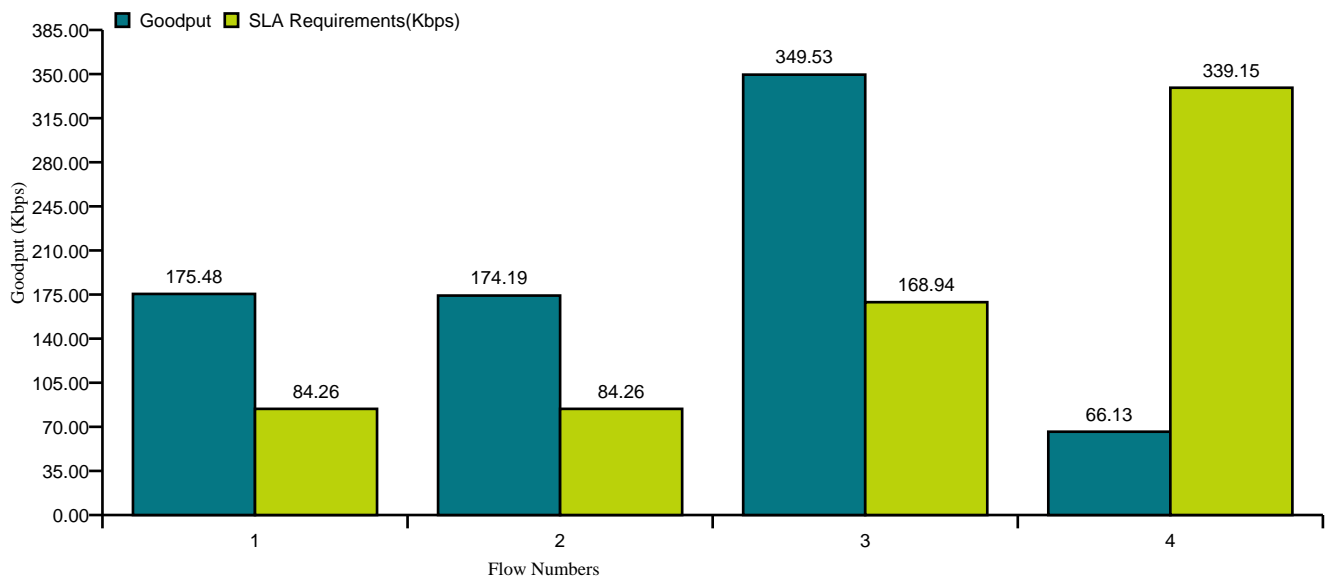
FTP Goodput



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

Flow Num	IP	MAC	Port	Network	Direction
1	172.16.203.115 to 172.16.2.200	00:02:00:68:00:00 to 00:01:00:10:02:c8	wt-tga-15-26_port2 to wt-tga-15-26_port1	vw_open, 00:18:74:89:fa:40	Uplink
2	172.16.2.200 to 172.16.203.110	00:01:00:10:02:c8 to 00:02:00:67:00:00	wt-tga-15-26_port1 to wt-tga-15-26_port2	vw_open, 00:18:74:89:fa:40	Downlink

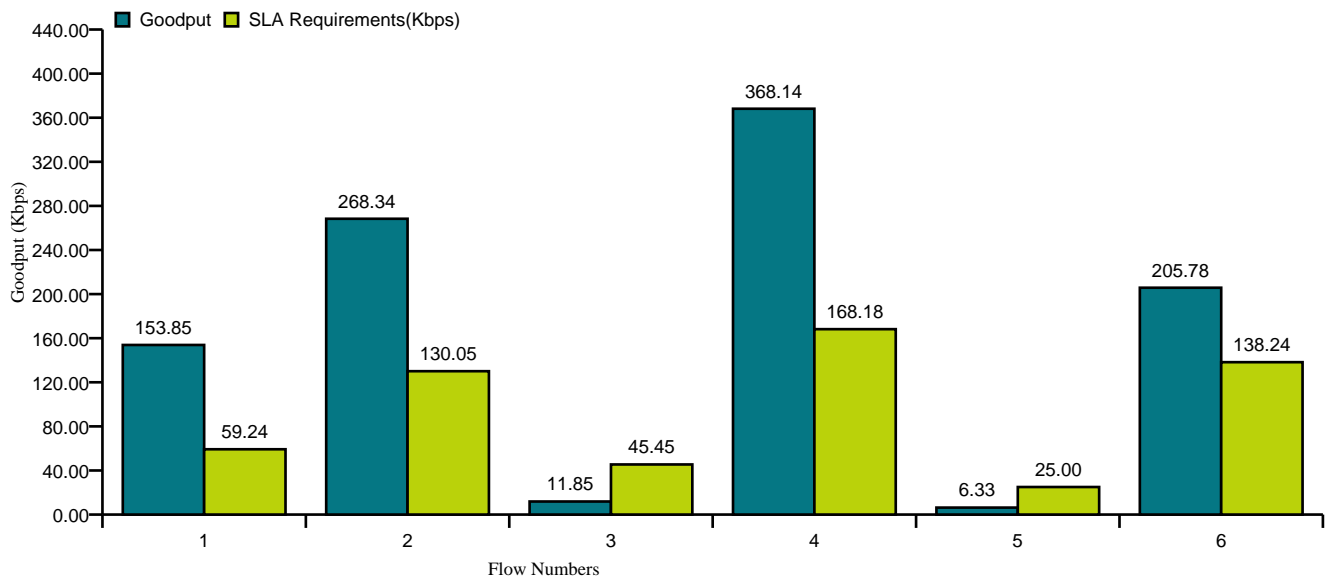
HTTP Goodput



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

Flow Num	IP	MAC	Port	Network	Direction
1	172.16.203.91 to 172.16.3.200	00:02:00:65:00:00 to 00:01:00:10:03:c8	wt-tga-15-26_port2 to wt-tga-15-26_port1	vw_open, 00:18:74:89:fa:40	Uplink
2	172.16.203.97 to 172.16.3.200	00:02:00:66:00:00 to 00:01:00:10:03:c8	wt-tga-15-26_port2 to wt-tga-15-26_port1	vw_open, 00:18:74:89:fa:40	Uplink
3	172.16.3.200 to 172.16.203.86	00:01:00:10:03:c8 to 00:02:00:64:00:00	wt-tga-15-26_port1 to wt-tga-15-26_port2	vw_open, 00:18:74:89:fa:40	Downlink
4	172.16.3.200 to 172.16.203.81	00:01:00:10:03:c8 to 00:02:00:63:00:00	wt-tga-15-26_port1 to wt-tga-15-26_port2	vw_open, 00:18:74:89:fa:40	Downlink

TCP Goodput

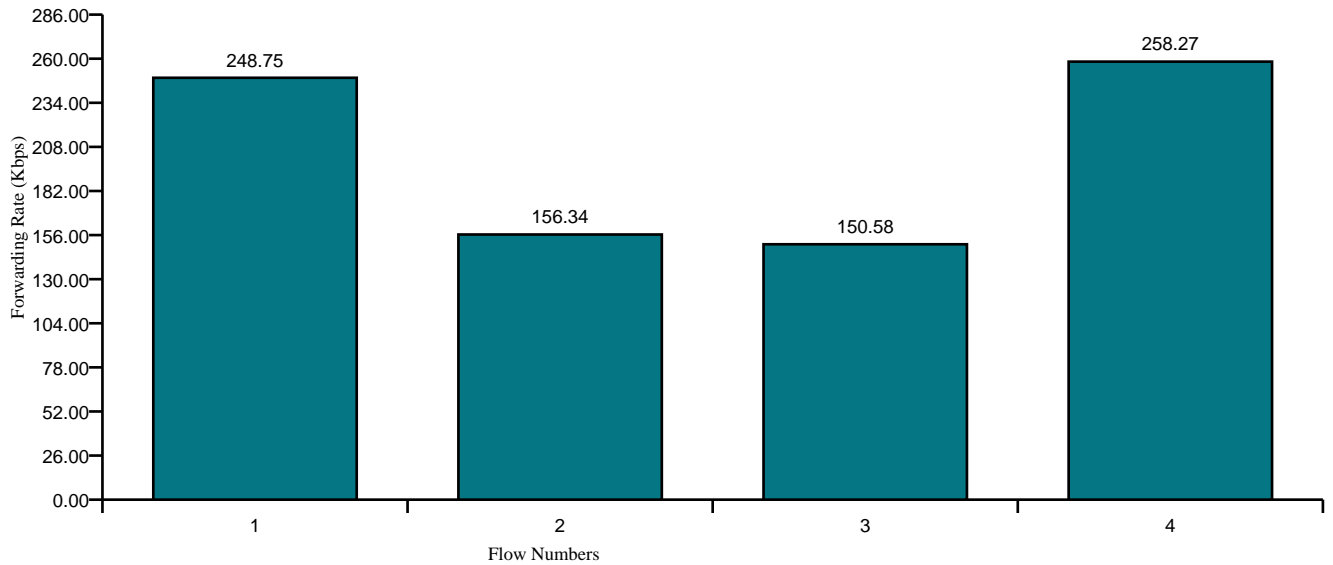


The following table shows more information about each flow of this traffic type for debugging purposes.

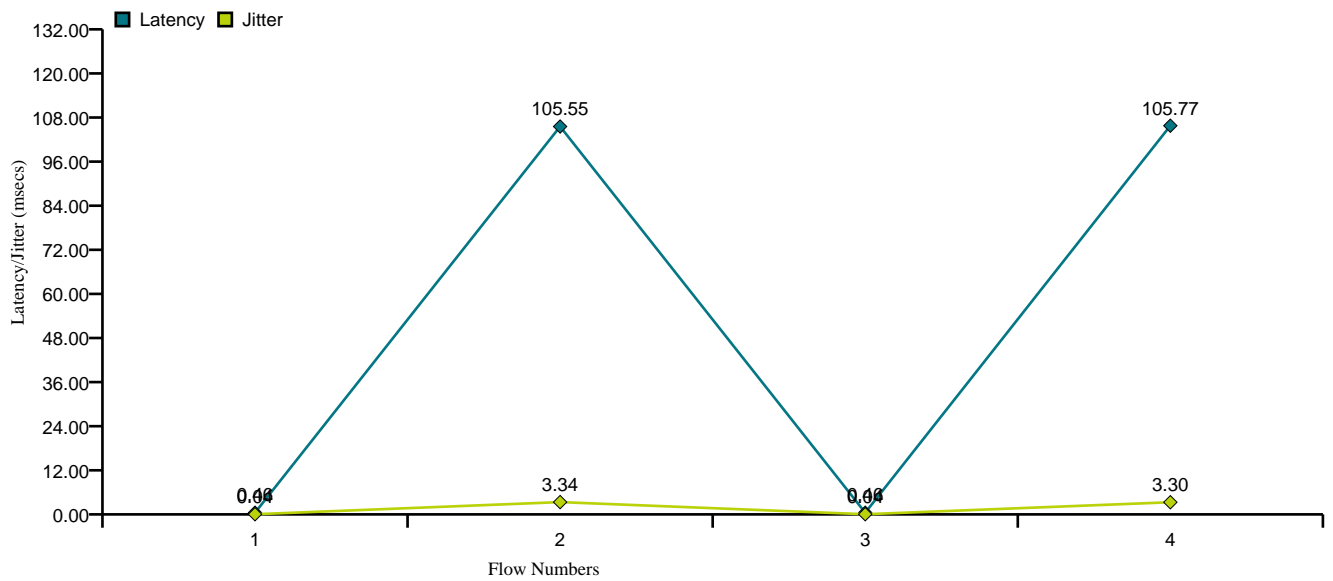
Flow Num	IP	MAC	Port	Network	Direction
1	172.16.203.143 to 172.16.7.200	00:02:00:6d:00:00 to 00:01:00:10:07:c8	wt-tga-15-26_port2 to wt-tga-15-26_port1	vw_open, 00:18:74:89:fa:40	Uplink
2	172.16.8.200 to 172.16.203.133	00:01:00:10:08:c8 to 00:02:00:6b:00:00	wt-tga-15-26_port1 to wt-tga-15-26_port2	vw_open, 00:18:74:89:fa:40	Downlink
3	172.16.8.200 to 172.16.203.78	00:01:00:10:08:c8 to 00:02:00:62:00:00	wt-tga-15-26_port1 to wt-tga-15-26_port2	vw_open, 00:18:74:89:fa:40	Downlink
4	172.16.203.121 to 172.16.4.200	00:02:00:69:00:00 to 00:01:00:10:04:c8	wt-tga-15-26_port2 to wt-tga-15-26_port1	vw_open, 00:18:74:89:fa:40	Uplink

Flow Num	IP	MAC	Port	Network	Direction
5	172.16.4.200 to 172.16.203.128	00:01:00:10:04:c8 to 00:02:00:6a:00:00	wt-tga-15-26_port1 to wt-tga-15-26_port2	vw_open, 00:18:74:89:fa:40	Downlink
6	172.16.203.139 to 172.16.7.200	00:02:00:6c:00:00 to 00:01:00:10:07:c8	wt-tga-15-26_port2 to wt-tga-15-26_port1	vw_open, 00:18:74:89:fa:40	Uplink

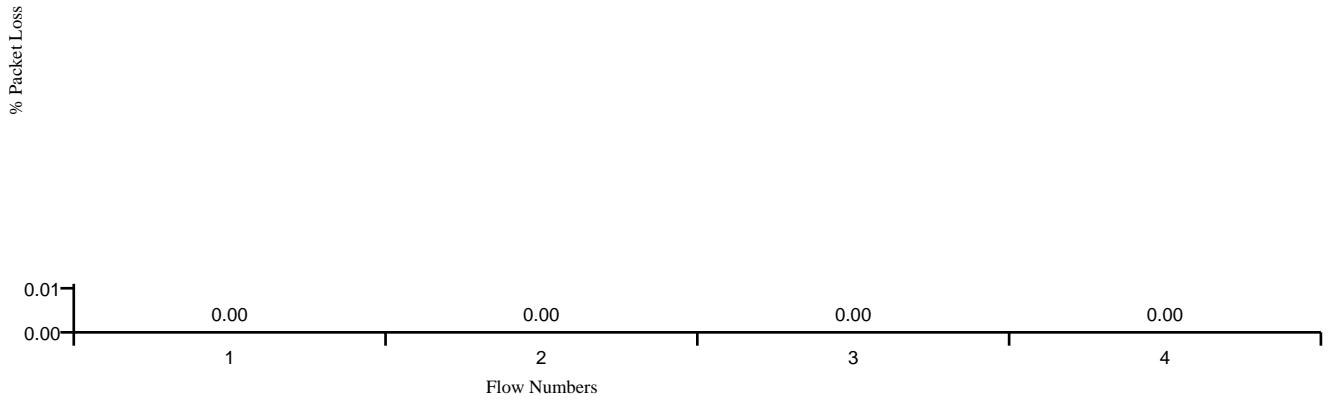
Forwarding Rate for UDP flows



Latency and Jitter for UDP flows



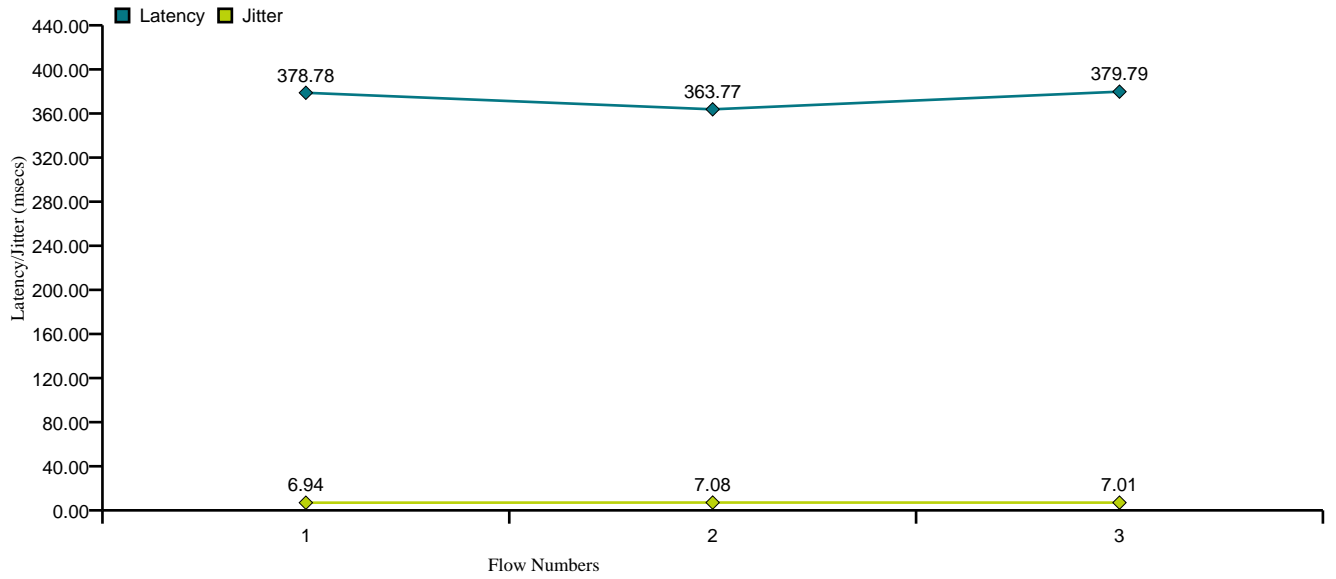
Percentage Packet Loss for UDP flows



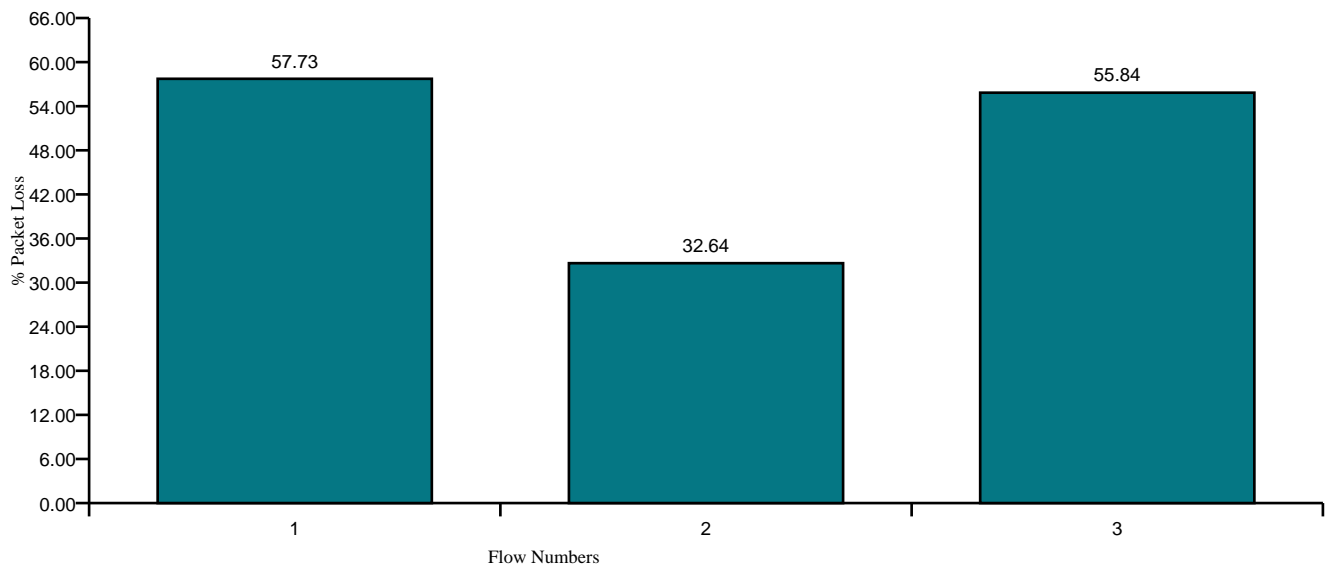
The following table shows more information about each flow of this traffic type for debugging purposes.

Flow Num	IP	MAC	Port	Network	Direction
1	172.16.205.236 to 172.16.4.200	00:02:00:71:00:00 to 00:01:00:10:04:c8	wt-tga-15-26_port2 to wt-tga-15-26_port1	vw_open, 00:18:74:89:fa:40	Uplink
2	172.16.4.200 to 172.16.203.163	00:01:00:10:04:c8 to 00:02:00:70:00:00	wt-tga-15-26_port1 to wt-tga-15-26_port2	vw_open, 00:18:74:89:fa:40	Downlink
3	172.16.203.163 to 172.16.4.200	00:02:00:70:00:00 to 00:01:00:10:04:c8	wt-tga-15-26_port2 to wt-tga-15-26_port1	vw_open, 00:18:74:89:fa:40	Uplink
4	172.16.4.200 to 172.16.205.236	00:01:00:10:04:c8 to 00:02:00:71:00:00	wt-tga-15-26_port1 to wt-tga-15-26_port2	vw_open, 00:18:74:89:fa:40	Downlink

Latency and Jitter for RTP flows



Percentage Packet Loss for RTP flows



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

Flow Num	IP	MAC	Port	Network	Direction
1	172.16.4.200 to 172.16.205.235	00:01:00:10:04:c8 to 00:02:00:73:00:00	wt-tga-15-26_port1 to wt-tga-15-26_port2	vw_open, 00:18:74:89:fa:40	Downlink
2	172.16.4.200 to 172.16.205.237	00:01:00:10:04:c8 to 00:02:00:74:00:00	wt-tga-15-26_port1 to wt-tga-15-26_port2	vw_open, 00:18:74:89:fa:40	Downlink

Flow Num	IP	MAC	Port	Network	Direction
3	172.16.4.200 to 172.16.205.234	00:01:00:10:04:c8 to 00:02:00:72:00:00	wt-tga-15-26_port1 to wt-tga-15-26_port2	vw_open, 00:18:74:89:fa:40	Downlink

Test Parameters

The table below shows the input parameters for the test

Parameter	Value
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Access Point Information

Port Name	Channel	BSSID	SSID	Min RSSI	Avg RSSI	Max RSSI
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Other Information

Results Directory C:\Program Files\VeriWave\VCE\Results\20071106-104007
 WaveVCE Version 2.4.VCE-9, 2007.11.01.14
 WaveTest Version 2.4.2.1, 2007.08.13.12