



K-20 Layer-2 Test Results: wishram-k12

Job Information

Job ID	1
Contractor	University of Washington
Customer	wishram-k12
Report Date	2017-11-21 10:49:07
Operator Name	enneking
Circuit ID	StarTouch:WISWESK2-100M-110917

File Name: C:\Users\enneking\Documents\EXFO\ExVu310G\Reports\2017-11-21-a_wishram-k12_pass-ish.pdf

Comment: Spikes of frame loss and latency, mostly near beginning.

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1. Setup

1.1. IPversion Status

Port	IP Version
Port1	IPv4

1.2. Transceiver Mode

Item	Value
Transceiver Mode	10GigE LAN

2. Summary

2.1. Alarm

2.1.1. Alarms

2.1.1.1. Global

Alarm	H
Global	Fault
Log Full	No Fault

2.1.1.2. Physical

Alarm	H
LOS	No Fault
Frequency	No Fault
LOC	No Fault

Signal Analysis	Value
Pwr (dBm)	-1.7

Frequency Analysis	Value
Freq (bps)	10312520704.0
Offset (ppm)	2

2.1.1.3. WIS

No information is available

2.1.1.4. Ethernet

Alarm	H
Error	Fault
Link	No Fault
Fault	No Fault

2.1.1.5. Higher Layer Protocol

Alarm	H
Error	No Fault

2.1.1.6. Pattern

No information is available

2.1.1.7. Other

Alarm	H
SDT	No Fault

2.1.2. Logger

2.1.2.1. Logger Events

ID	Date/Time	Data Path	Event	Duration	Count	Rate
1	2017-11-21 10:37:59	Test 1	Test Started			
2	2017-11-21 10:39:22	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:01	1	1.58E-06
3	2017-11-21 10:39:41	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:02	16	1.83E-05
4	2017-11-21 10:39:47	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:01	1	1.80E-05
5	2017-11-21 10:40:09	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:02	14	2.39E-05
6	2017-11-21 10:40:17	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:01	2	2.36E-05
7	2017-11-21 10:40:31	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:01	1	2.13E-05
8	2017-11-21 10:40:35	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:01	1	2.11E-05
9	2017-11-21 10:40:37	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:01	2	2.19E-05
10	2017-11-21 10:40:48	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:01	2	2.11E-05
11	2017-11-21 10:41:01	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:01	2	2.01E-05
12	2017-11-21 10:41:06	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:02	2	2.02E-05
13	2017-11-21 10:41:41	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:01	1	1.68E-05
14	2017-11-21 10:41:48	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:01	1	1.66E-05
15	2017-11-21 10:41:53	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:01	2	1.68E-05
16	2017-11-21 10:42:14	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:01	6	1.71E-05
17	2017-11-21 10:42:16	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:01	1	1.72E-05
18	2017-11-21 10:42:19	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:01	5	1.86E-05

19	2017-11-21 10:42:51	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:01	1	1.65E-05
20	2017-11-21 10:43:51	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:01	2	1.37E-05
21	2017-11-21 10:44:12	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:02	2	1.32E-05
22	2017-11-21 10:44:21	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:02	3	1.35E-05
23	2017-11-21 10:44:26	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:01	1	1.35E-05
24	2017-11-21 10:45:23	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:02	4	1.23E-05
25	2017-11-21 10:45:31	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:01	1	1.22E-05
26	2017-11-21 10:45:36	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:01	1	1.22E-05
27	2017-11-21 10:45:41	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:01	1	1.22E-05
28	2017-11-21 10:45:44	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:01	4	1.28E-05
29	2017-11-21 10:46:08	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:01	1	1.23E-05
30	2017-11-21 10:46:10	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:01	2	1.25E-05
31	2017-11-21 10:46:19	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:01	3	1.27E-05
32	2017-11-21 10:46:29	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:01	3	1.29E-05
33	2017-11-21 10:46:31	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:01	1	1.30E-05
34	2017-11-21 10:46:33	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:01	1	1.31E-05
35	2017-11-21 10:46:36	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:01	1	1.31E-05
36	2017-11-21 10:46:38	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:01	2	1.33E-05
37	2017-11-21 10:46:47	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:01	1	1.32E-05

38	2017-11-21 10:46:50	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:01	1	1.33E-05
39	2017-11-21 10:47:00	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:01	1	1.32E-05
40	2017-11-21 10:47:18	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:01	12	1.43E-05
41	2017-11-21 10:47:23	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:01	1	1.43E-05
42	2017-11-21 10:47:28	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:01	9	1.53E-05
43	2017-11-21 10:48:23	Optical [P1]/Ethernet Framed Layer 2/Traffic Stream/Stream[1]	Frame Loss	00:00:01	7	1.47E-05
44	2017-11-21 10:48:48	Test 1	Test Stopped			

2.2. Test

2.2.1. Test Status

Item	Value
Start Time:	2017-11-21 10:37:59
Port 1 Link	Up

2.2.2. Test Configuration

Item	Value
Application Type	EtherSAM (Y.1564)
Test Name	BV10.EtS
Test Description	

2.2.3. Test Preferences

No information is available

2.2.4. Clock Configuration

Item	Value
Clock Mode	Internal

2.2.5. Alarm Analysis

Alarm	H	Seconds
LOC	No Fault	0

2.2.6. Timer Configuration

Item	Value
Start Time Status	Disabled
Start Time	2015-07-20 12:19:45
Stop Time Status	Disabled
Stop Time	2015-07-20 12:19:45
Duration Status	Disabled
Duration	15 minutes
On/Off State	Disabled

3. Optical [P1]/Port

3.1. TX

3.1.1. Signal Analysis

Item	Value
Output Presence	Active

3.1.2. Alarm Generation

Item	Value
Type	LOS
On/Off	Disabled

3.1.3. Frequency

Item	Value
Frequency Offset (ppm)	0
On/Off	Disabled
Actual Frequency (bps)	10312499904
Nominal Frequency (bps)	10312500000

3.2. RX

3.2.1. Signal Analysis

Item	Value
Range (dBm)	-18.0 to 2.0
Power (dBm)	-1.7

3.2.2. Alarm Analysis

Alarm	H	Seconds
LOS	No Fault	0
Frequency	No Fault	0

3.2.3. Frequency Analysis

Item	Value
Frequency (bps)	10312520704
Frequency Offset (bps)	20704
Max. Negative Offset (bps)	0
Max. Positive Offset (bps)	20832

3.3. Interface

3.3.1. Configuration

Item	Value
Flow Control	None

3.3.2. Status

Item	Value
Link	Up

3.4. Network

3.4.1. MAC Configuration

Item	Value
MAC Address	00:03:01:08:9E:3D

3.4.1.1. VLAN

Item	Value
Enable VLAN	Disabled

3.4.2. IP Configuration

Item	Value
IP Address	10.10.114.173
Subnet Mask	255.255.255.0
Enable DHCP	Disabled
Enable Default Gateway	Disabled
Default Gateway	N/A

3.4.3. Frame Format

Item	Value
Format	Ethernet II
OUI	N/A

4. EtherSAM Configuration

4.1. Overview

4.1.1. EtherSAM Configuration Overview

Service	Profile	Enabled	Service Name	Frame Size	CIR (Mbps)	Max Jitter (ms)	Max Latency (ms)	Frame Loss (%)	CBS (Bytes)
1	Data	Enabled	100Mb CIR	Random	95.0	2	28	0.01	N/A
2	Data	Disabled	Service 2	74	5000.0	2	15	0.1	N/A
3	Data	Disabled	Service 3	74	5000.0	2	15	0.1	N/A
4	Data	Disabled	Service 4	74	5000.0	2	15	0.1	N/A
5	Data	Disabled	Service 5	74	5000.0	2	15	0.1	N/A
6	Data	Disabled	Service 6	74	5000.0	2	15	0.1	N/A
7	Data	Disabled	Service 7	74	5000.0	2	15	0.1	N/A
8	Data	Disabled	Service 8	74	5000.0	2	15	0.1	N/A
9	Data	Disabled	Service 9	74	5000.0	2	15	0.1	N/A
10	Data	Disabled	Service 10	74	5000.0	2	15	0.1	N/A

4.1.2. Global Verdict

4.1.3. Enable Sub-Tests

Item	Value
Service Configuration Test	Enabled
Ramp Test	Enabled
Burst Test	Disabled
Service Performance Test	Enabled

4.1.4. Sub-Tests Duration

Item	Duration
Service Configuration Test	00d:00:00:20
Service Performance Test	00d:00:10:00

4.1.5. Total TX Rate (%)

Item	Value
Available	99.05
Committed	0.95

4.2. Services**4.2.1. 100Mb CIR****4.2.1.1. SLA Parameters**

Item	Value
CIR (Mbit/s)	95.0
CIR+EIR (Mbit/s)	N/A
Traffic Policing (Mbit/s)	N/A
CBS (Bytes)	N/A
EBS (Bytes)	N/A
Burst Max Rate (Mbit/s)	N/A
Max Jitter (ms)	2
Max Latency (ms)	28
Frame Loss (%)	0.01

4.2.1.2. Frame Configuration**4.2.1.2.1. Service Profile**

Item	Value
Profile Type	Data

4.2.1.2.2. Frame Configuration

Item	Value	Size
Data Link	Ethernet II	Random
Network	IPv4	Random
Transport	UDP	Random

4.2.1.3. MAC

4.2.1.3.1. Source

Item	Value
MAC Address	00:03:01:08:9E:3D

4.2.1.3.2. Destination

Item	Value
MAC Address	00:03:01:10:2D:46
Resolve MAC Address	Enabled
Status	Resolved

4.2.1.3.2.1. VLAN

Item	Value
Enable VLAN	Disabled

4.2.1.3.3. Frame Format

Item	Value
Format	Ethernet II
OUI	N/A
User Defined OUI	N/A
EtherType	0800

4.2.1.4. MPLS Configuration

Item	Value
Label #2	N/A
COS / EXP #2	N/A
TTL #2	N/A

4.2.1.5. IP**4.2.1.5.1. Source**

Item	Value
IP Address	10.112.0.01
Subnet Mask	255.255.255.0

4.2.1.5.1.1. IP Multiplier

Item	Value
Enable	Disabled
Range	N/A

4.2.1.5.2. Destination

Item	Value
IP Address	10.112.0.31
TTL	128
IP TOS/DS	00

4.2.1.5.2.1. Advanced TOS/DS

Item	Value
Enable Differentiated Services	Disabled

4.2.1.5.2.1.1. DS

No information is available

4.2.1.5.2.1.2. TOS

Item	Value
Precedence	000 (Routine)
Delay	Normal
Throughput	Normal
Reliability	Normal
Monetary Cost	Normal
Reserved Bit	0

4.2.1.5.2.2. Default Gateway

Item	Value
Enable	Disabled
Default Gateway	N/A

4.2.1.6. UDP

4.2.1.6.1. Source

Item	Value
Port	49184

4.2.1.6.2. Destination

Item	Value
Port	7

4.2.1.7. Payload

No information is available

4.3. Ramp

Step List	Value (% of CIR)
Step Time (s)	5
Ramp Duration (s)	25

Step1 (%)	50.0
Step2 (%)	75.0
Step3 (%)	90.0
Step4	CIR
Step5	Traffic Policing

4.4. Burst

Item	Value
Number of Burst Sequence	2
Refill Delay Ratio (%)	50
Burst/IR Frame Ratio (%)	90

4.4.1. Burst Test

Service No.	CBS Test Time (s)	EBS Test Time (s)	Total Burst Test Time (s)
1	N/A	N/A	--
2	N/A	N/A	--
3	N/A	N/A	--
4	N/A	N/A	--
5	N/A	N/A	--
6	N/A	N/A	--
7	N/A	N/A	--
8	N/A	N/A	--
9	N/A	N/A	--
10	N/A	N/A	--
Total	0	0	0

5. EtherSAM Results

5.1. Overview

5.1.1. Global Progress

Item	Value
Test Status	Completed
Verdict	FAIL

5.1.2. Configuration Test Overview

5.1.2.1. 100Mb CIR

Item	Value	Verdict
Frame Loss (%)	4.756	FAIL
Max Jitter (ms)	3.009	FAIL
Max Latency (ms)	19.006	PASS
Max RX Rate (Mbit/s)	94.994	PASS

5.1.3. Performance Test Overview

5.1.3.1. 100Mb CIR

Item	Value	Verdict
Average RX Rate (Mbps)	94.998	PASS
Frame Loss (%)	0.001	PASS
Max Jitter (ms)	2.565	FAIL
Max Latency (ms)	32.493	FAIL
Verdict	FAIL	FAIL

5.2. Service Configuration Test

5.2.1. 100Mb CIR

5.2.1.1. Service Verdict

Item	Verdict
Service Verdict	FAIL

5.2.1.2. Max RX Rate

Item	Value	Verdict
Max RX Rate (Mbit/s)	94.994	PASS

5.2.1.3. Step 1

Item	Value	Verdict
Percentage of CIR	50.0	Not Applicable
Frame Loss (%)	0.000	PASS
Max Jitter (ms)	1.208	PASS
Max Latency (ms)	15.147	PASS
Verdict	PASS	PASS
Average RX Rate (Mbps)	47.492	N/A

5.2.1.4. Step 2

Item	Value	Verdict
Percentage of CIR	75.0	Not Applicable
Frame Loss (%)	0.000	PASS
Max Jitter (ms)	0.942	PASS
Max Latency (ms)	15.491	PASS
Verdict	PASS	PASS
Average RX Rate (Mbps)	71.255	N/A

5.2.1.5. Step 3

Item	Value	Verdict
Percentage of CIR	90.0	Not Applicable
Frame Loss (%)	4.756	FAIL
Max Jitter (ms)	3.009	FAIL
Max Latency (ms)	18.300	PASS
Verdict	FAIL	FAIL
Average RX Rate (Mbps)	81.411	N/A

5.2.1.6. Step CIR

Item	Value	Verdict
Frame Loss (%)	0.000	PASS
Max Jitter (ms)	1.611	PASS
Max Latency (ms)	19.006	PASS
Verdict	PASS	PASS
Average RX Rate (Mbps)	94.994	N/A

5.3. Service Performance Test**5.3.1. Port 1****5.3.1.1. 100Mb CIR****5.3.1.1.1. Sequence Tracking**

Error	H	Seconds	Count	Rate	Percentage
Out-Of-Sequence	No Fault	0	0	0.00E00	0.000
Frame Loss	Fault	48	126	1.44E-05	0.001

5.3.1.1.2. RX Rate

Item	Value
Minimum (%)	0.943
Maximum (%)	0.954
Current (%)	0.949
Average (%)	0.949
RX Frame Count	8789717

5.3.1.1.3. Round Trip Latency

Item	Value
Minimum (ms)	12.992
Maximum (ms)	32.493
Current (ms)	13.604
Average (ms)	13.793

5.3.1.1.4. Jitter

Item	Value
Minimum (ms)	< 0.015
Maximum (ms)	2.565
Current (ms)	< 0.015
Average (ms)	0.086
Number of Samples	8745688
Estimate (ms)	0.067

6. Optical [P1]/Ethernet Framed Layer 2/Traffic Analyzer

6.1. Eth. RX

6.1.1. Configuration

Item	Value
Oversize Monitoring	Disabled

6.1.2. Alarm Analysis

Alarm	H	Seconds
Link Down	No Fault	0
Local Fault	No Fault	0
Remote Fault	No Fault	0

6.1.3. Error Analysis

Error	H	Seconds	Count	Rate
Block	No Fault	0	0	0.00E00
FCS	No Fault	0	0	0.00E00
Jabber/Giant	No Fault	0	0	0.00E00
Oversize	N/A	N/A	N/A	N/A
Runt	No Fault	0	0	0.00E00
Undersize	No Fault	0	0	0.00E00
Total Error Count			0	

6.2. Eth. Stats

6.2.1. Total Frame Counts

	RX Count	TX Count
Total Count	9017357	9020274

6.2.2. Valid Frame Counts

Frames	TX Count	RX Count
Multicast	0	348
Broadcast	11	0
Unicast	9020263	9017009
N-Unicast	11	348
Total	9020274	9017357

6.2.3. Frame Size

Frame Size	Count	Total (%)
< 64	0	0.000
64	6328	0.070
65 - 127	391367	4.340
128 - 255	793278	8.797
256 - 511	1585956	17.588
512 - 1023	3173627	35.195
1024 - 1518	3066801	34.010
> 1518	0	0.000

6.2.4. Throughput

Item	Value
Bandwidth (Mbps)	0.0
Utilization (%)	0.0
Frame Rate (fps)	0

6.3. Higher Layers**6.3.1. Higher Layer Protocol**

Error	H	Seconds	Count	Rate
IP Header Checksum	No Fault	0	0	0.00E00
UDP Checksum	No Fault	0	0	0.00E00
TCP Checksum	No Fault	0	0	--

7. Clock Synchronization

7.1. RX

7.1.1. Configuration

Item	Value
Interface Type	None
Termination Mode	N/A
Line Coding	N/A
Framing	N/A

7.1.2. Alarm Analysis

Alarm	State
LOS	N/A
AIS	N/A
LOF	N/A
Frequency	N/A

7.1.3. Frequency Analysis

Item	Value
Frequency (bps)	--
Frequency Offset (ppm)	--

7.2. Backplane

7.2.1. Configuration

Item	Value
Clock Mode	Internal
Enable	Disabled

7.2.2. Alarm Analysis

Alarm	State
LOC	No Fault

7.3. Clock Out

7.3.1. Configuration

Item	Value
Clock Out Divider	16

8. Software Options

8.1. Available Options

Category	Name	Description	Status
Feature	SK-ADV-FILTERS	Advanced Traffic Filtering	Enabled
Feature	SK-DATA-CAPTURE	Ethernet Frame Capture for Advanced Troubleshooting	Disabled
Feature	SK-ETHERSAM	Ethernet Service Activation Methodology Application Type	Enabled
Feature	SK-IPV6	Internet Protocol Version 6 (IPv6)	Disabled
Feature	SK-MPLS	Multi Protocol Label Switching	Disabled
Feature	SK-PBB-TE	Provider Backbone Bridge with Traffic Engineering	Disabled
Feature	SK-TRAFFIC-SCAN	Traffic Scan Troubleshooting Feature	Disabled
Network	SK-LAN	Local Area Network	Enabled
Network	SK-WAN	Wide Area Network	Enabled

9. Ping [P1]/Ping

9.1. Configuration

9.1.1. Ping

9.1.1.1. Setup

Item	Value
IP Address	10.10.114.172
Run	Disabled

9.1.1.1.1. Configuration

Item	Value
Timeout (ms)	4000
Delay (ms)	1000
Data Size (Bytes)	32
Time To Live (TTL)	128
Attempts	4
Continuous	Disabled
Type Of Service (TOS)	00

9.1.1.2. Results

#	Status	Replied From	Bytes	Time (ms)	TTL
1	Successful	10.112.0.31	32	13	63
2	Successful	10.112.0.31	32	13	63
3	Successful	10.112.0.31	32	13	63
4	User Aborted	0.0.0.0	0	0	0

9.1.1.2.1. Statistics

Item	Value
TX (packets)	3
RX (packets)	3
Lost (%)	0
Minimum Round Trip Time (ms)	13
Maximum Round Trip Time (ms)	13
Average Round Trip Time (ms)	13

9.1.2. TraceRoute**9.1.2.1. Setup**

Item	Value
IP Address	10.10.114.172
Run	Disabled

9.1.2.1.1. Configuration

Item	Value
Timeout (ms)	4000
Max. Hop Count	128

9.1.2.2. Results

No information is available

9.1.2.2.1. Statistics

No information is available