

Scenario	Traffic generat or (packet/sec)*	Access Point Throug hput**	Captured throughput pak/s	Captured packets (n <sub>1</sub> )	Processed packets (n <sub>2</sub> )	Number of ML *** execution s (n <sub>3</sub> )	T1**** (µs/ packet)	T2***** (µs/ packet)	Comentario
<b>1</b> T <sub>TEST</sub> = 240sec	NONE *****	N/A	3.7	887	0	0	1.254	16	Escenario con solo T1;  T2=T31=T32=0
	+0	N/A	5467.3	1312151	0	0	1.820	16	
	+X <sub>11</sub>	N/A	5497.06	1319295	0	0	2.001	16	
	+X <sub>12</sub>	N/A	5542.19	1330125	0	0	2.090	16	
	+X <sub>13</sub>	N/A	5530.53	1327326	0	0	1.733	16	
	...	N/A	5323.08	1277538	0	0	1.925	16	
	+X <sub>1M</sub>	N/A	5488.73	1317294	0	0	1.805	16	
<b>2</b> T <sub>TEST</sub> = 240sec	NONE	N/A	19.98	4796	4796	0	11.003	16	Escenario con T1 y T2;  T2=T2b>T2a T31=T32=0
	+0	N/A	1458.4	350016	350016	0	5.463	16	
	+X <sub>11</sub>	N/A	2725.87	654208	654208	0	5.008	16	
	+X <sub>12</sub>	N/A	5391.87	1294049	1294049	0	3.7462	16	
	+X <sub>13</sub>	N/A	5583.96	1340151	1340151	0	3.854	16	
	...	N/A	5481.32	1315516	1315516	0	3.868	16	
	+X <sub>1M</sub>	N/A	5694.2	1366607	1366607	0	3.796	16	
<b>3A</b> T <sub>TEST</sub> = 240sec T <sub>31</sub> =60s T <sub>32</sub> =1.162s	NONE	N/A	22.8	5472	5472	4	10.490	16	Escenario con T1, T2, T31 y T32  T2=T2b T32=T32a
	+0	N/A	1072.26	257342	257342	4	6.199	16	
	+X <sub>11</sub>	N/A	4548.26	1091583	1091583	4	4.106	16	
	+X <sub>12</sub>	N/A	5782.72	1387853	1387853	4	3.737	16	
	+X <sub>13</sub>	N/A	3765.12	903629	903629	4	4.365	16	
	...	N/A	3897.8	935473	935473	4	4.565	16	
	+X <sub>1M</sub>	N/A	5586.38	1340731	1340731	4	4.068	16	
<b>3B</b> T <sub>TEST</sub> = 240sec T <sub>31</sub> =60s T <sub>32</sub> =2.35s	NONE	N/A	5.48	1316	1316	4	18.581	16	Escenario con T1, T2, T31 y T32  T2=T2b T32=T32b
	+0	N/A	5587.95	1341108	1341108	4	3.738	16	
	+X <sub>11</sub>	N/A	5797.3	1391351	1391351	4	3.647	16	
	+X <sub>12</sub>	N/A	5599.44	1343865	1343865	4	3.841	16	
	+X <sub>13</sub>	N/A	5689.92	1365581	1365581	4	3.549	16	
	...	N/A	5718.25	1372380	1372380	4	3.428	16	
	+X <sub>1M</sub>	N/A	5409.85	1298364	1298364	4	3.896	16	

- \* The packet generation device(s) are in large limited by their hardware, with the best one's maximum speed being 300Mbps.
- \*\* The Access Point used for these tests unfortunately did not provide any meaningful Wi-Fi traffic statistics. Instead, the throughput of the packet capture
- \*\*\* The Number of ML executions includes a final execution, as soon as the full  $T_{TEST}$  has elapsed
- \*\*\*\* T1 is estimated by subtracting the simulated T2 CPU time from the total CPU time. These estimations are far higher than the specific measurements made by measuring the CPU usage time of standalone tcpdump
- \*\*\*\*\* T2 is an estimation of the real CPU time requirements of the packet processing algorithm
- \*\*\*\*\* The tests ran with traffic generator "NONE" were ran by monitoring normal home traffic (HD Video streaming, web browsing, etc)

Test source code in: <https://github.com/CrashLogger/RPI4B-Probe/tree/main/tests/sniffer>

Dependencies: nexmon (Wi-Fi chip firmware replacement), libpcap (Packet capture library)