

## Carambola 2 module throughput test

### Test setup

Purpose of this test was to illustrate the throughput, which should be expected to achieve in good radio signal condition. Carambola2 development boards for test were modified removing R119 from Carambola 2 development board (Pic 1). Then RF signal goes through U.FL connector on the module. Carambola 2 development board schematics can be downloaded here:

[http://8devices.com/media/files/8dev-0700\\_0002\\_sb\\_SCH.pdf](http://8devices.com/media/files/8dev-0700_0002_sb_SCH.pdf)

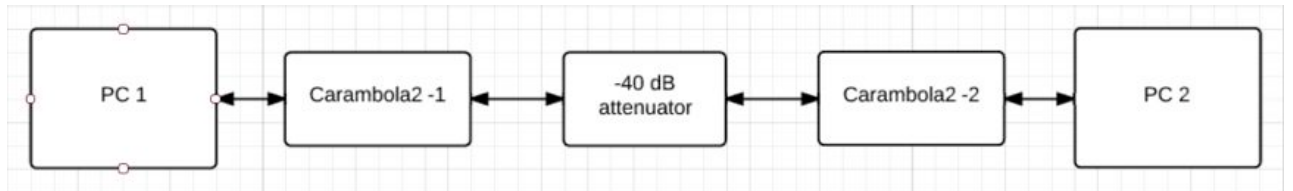


Pic 1

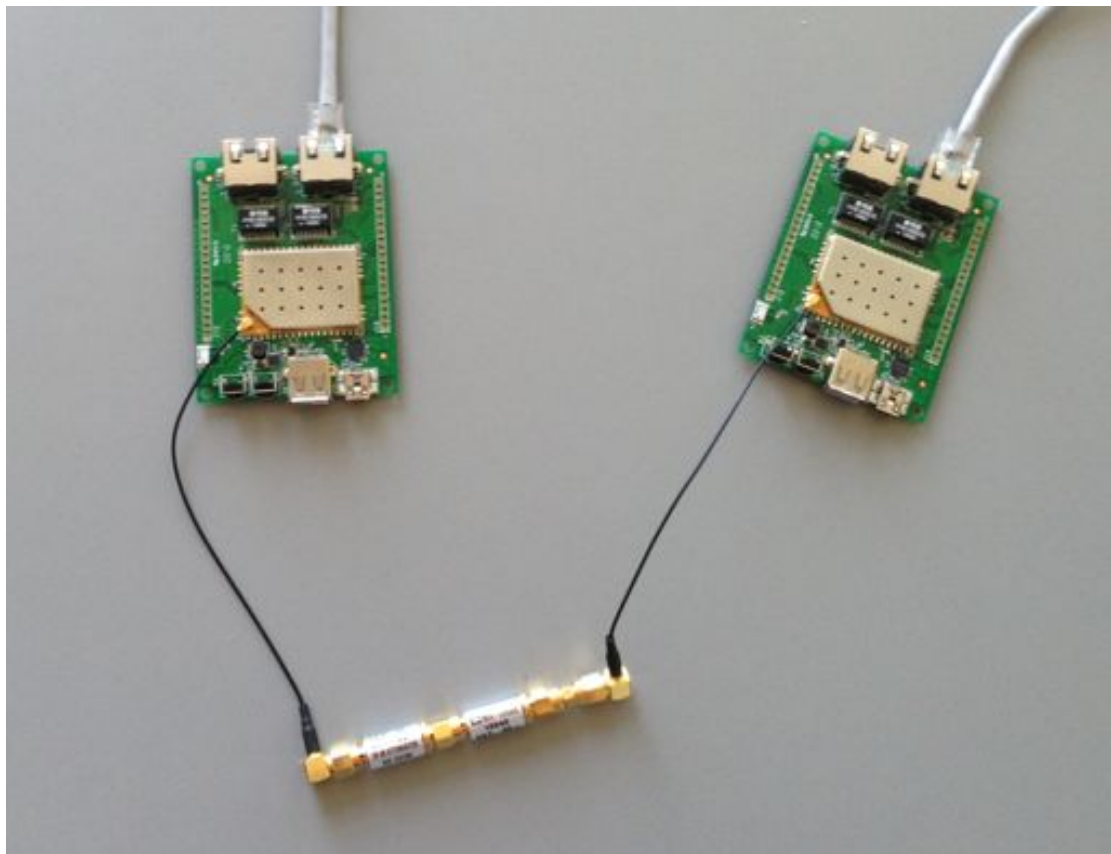
Test setup contains two Carambola2 modules, where one module was configured for AP mode and the other was configured for STA WDS (WDS client mode) and network was configured for the transparent bridge mode. For traffic generation and throughput measurement we were using two generic PC computers with Linux.

Nepim (<http://www.nongnu.org/nepim/>) was used end to end (PC1 to PC2) TCP throughput measurement.

Iperf (<http://sourceforge.net/projects/iperf/>) was used for end to end UDP throughput measurement.



Pic 2 test setup topology



Pic 3. Test setup

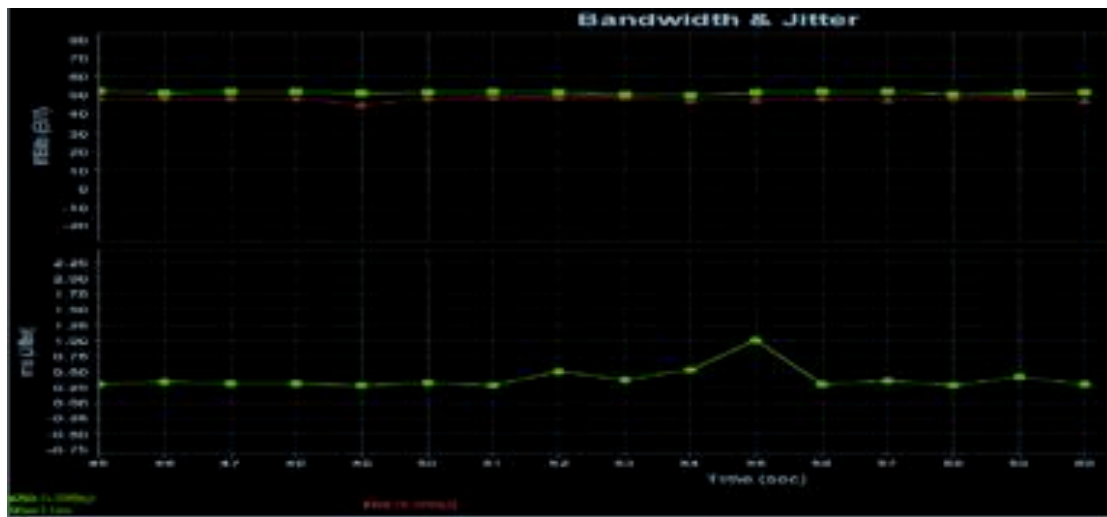
Modules are interconnected with RF cable with -40dB attenuator (Pic 3), RF signal levels were around -50dBm on each side with 40MHz bandwidth and 0dBm output power settings.

## Results

Tool	Throughput (Mbps)	Protocol
Nepim	73.9	TCP
Iperf	100,3	UDP

```
3 cur 18 36369.28 38404.10 1649.50 146.50
3 cur 16 34863.52 35651.59 1574.00 136.00
3 cur 14 32745.01 44040.19 1511.00 168.00
3 cur 12 38770.96 36962.30 1758.00 141.00
3 cur 10 36778.51 36962.30 1674.50 141.00
3 cur 8 38356.10 34209.79 1703.00 130.50
3 cur 6 34404.51 41287.68 1583.50 157.50
3 cur 4 31134.83 44433.41 1433.50 169.50
3 cur 2 35699.73 38404.10 1651.00 146.50
3 avg 0 36436.32 39294.24 1636.60 149.91
3 min 0 27755.26 27131.90 1295.50 103.50
3 max 0 47264.95 46530.56 2070.00 177.50
```

Pic 4. TCP throughput test with Nepim



Pic 5. UDP throughput test with Iperf