CASE STUDY

# SAFARICOM DEPLOYS AVIAT MULTI-BAND TO DRAMATICALLY LOWER THEIR BACKHAUL TCO


This case study details why Safaricom, the largest telecom company in Kenya, recently selected Aviat's WTM 4800 multi-band radio platform to support their 5G backhaul rollout.

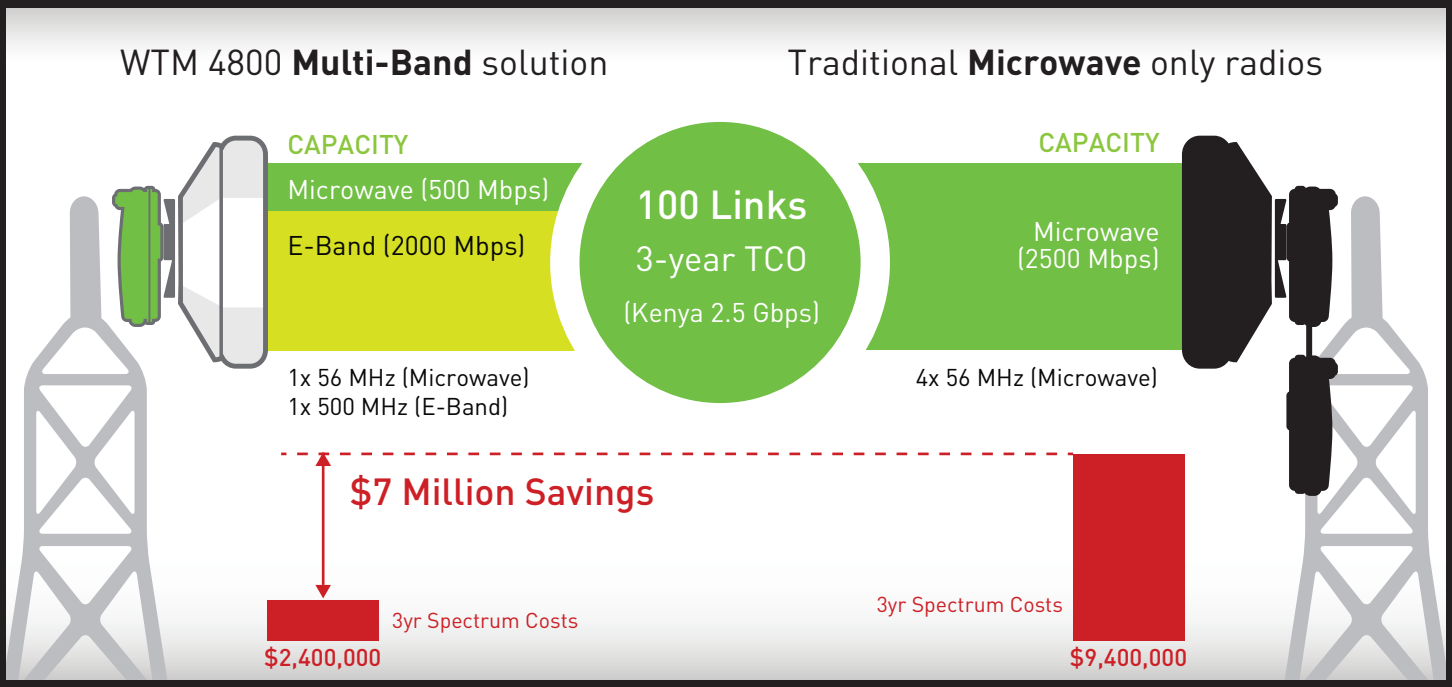
# SUMMARY

Safaricom, the largest telecom company in Kenya, recently selected Aviat's WTM 4800 multi-band radio platform to support their 5G backhaul rollout.

Microwave spectrum cost is one of the largest TCO (total cost of ownership) elements in many countries around the world, and as capacity demands grow with 5G, more backhaul spectrum is required. Aviat multi-band provides the lowest TCO for 5G backhaul, especially in countries, like Kenya, where the cost of microwave spectrum is amongst the highest in the world.


Aviat recently completed a Multi-Band trial with Safaricom, deploying a link over a path length in excess of 10 kilometers. This trial proved that even over such a long link, multi-band was able to perform exceptionally well, supporting ultra-high capacity but at a small fraction of the cost of using licensed microwave spectrum alone.

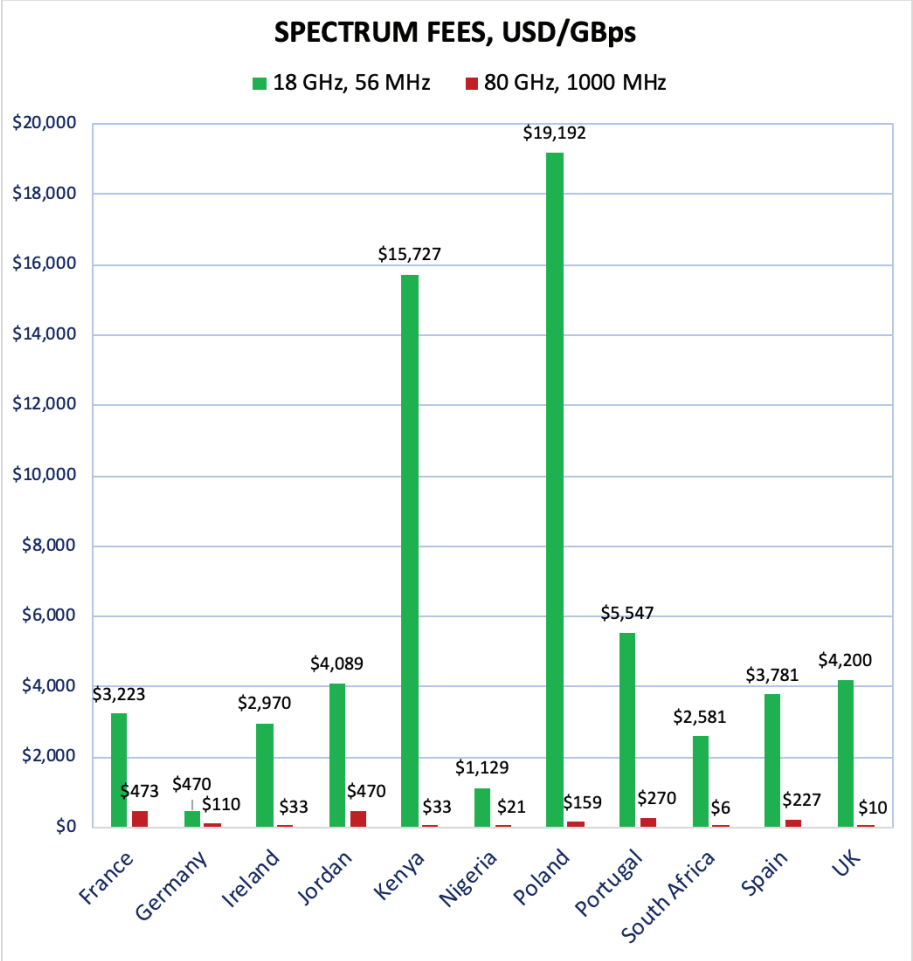
Even for just a single 2 Gbps link, Aviat's multi-band solution can save Safaricom over US$30,000 every year in spectrum fees. If Safaricom were to replace 100x 2.5 Gbps microwave links with Multi-Band, they would save US$7 million over three years.



# SPECTRUM FEES IN KENYA

The fees charged by the Kenyan government to use spectrum in the microwave bands between 6 and 42 GHz are amongst the highest in the world. This chart compares the spectrum fees in Kenya with other countries across Europe, the Middle East, and Africa.

As an example, to deploy a link in the 18 GHz band that supports one 56 MHz channel that can carry 500 Mbps of capacity would cost more than US$7,800 each year. If an operator like Safaricom needed more capacity to support 5G deployments, say up to 2 Gbps, this would require the use of four channels, resulting in more than US$30,000 per link, per year.




In contrast, the spectrum fee for using the 80 GHz E-Band is significantly less, amounting to just US$33 per gigabit of data transported, versus more than US$15,000 per Gigabit for the 18 GHz band. This makes Kenya an ideal country for operators to shift their backhaul capacity from expensive microwave to much cheaper E-Band spectrum.

# SAFARICOM MULTI-BAND TRIAL

## Aviat recently completed a trial of a multi-band link operating over a distance of more than 10 kilometers. The multi-band link consisted of a WTM 4815 solution, combining 80 GHz and 15 GHz channels in a single all-outdoor radio unit.

The link supported a total aggregate capacity of 8.5 Gbps, comprising 8.2 Gbps in a 2000 MHz E-Band channel, running at 64QAM, plus 260 Mbps in a 28MHz channel in the 15 GHz band. The throughput from each channel is aggregated and balanced internally in the WTM radio, using Aviat's Layer-1 Link Aggregation protocol, and presented on a single 10 GE interface.

Kenya rainfall is moderate to heavy, according to the ITU-R (Rain Zone K), so while the overall rainfall intensity is not as high as west Africa or parts of Asia, it is equivalent to parts of southern Europe or the USA. The months between March to June are also the 'long rains' season. Aviat had deliberately designed this link to stretch the performance in these conditions.

Overall, the link performance exceeded all expectations. During the one-week trial, the E-Band channel suffered some degradation of capacity, and a total outage of 179 seconds, equivalent to 99.97% availability. Meanwhile, the 15 GHz channel did not suffer any reduction in capacity or outage.

## TAKING A CLOSER LOOK AT THE LINK SPECS

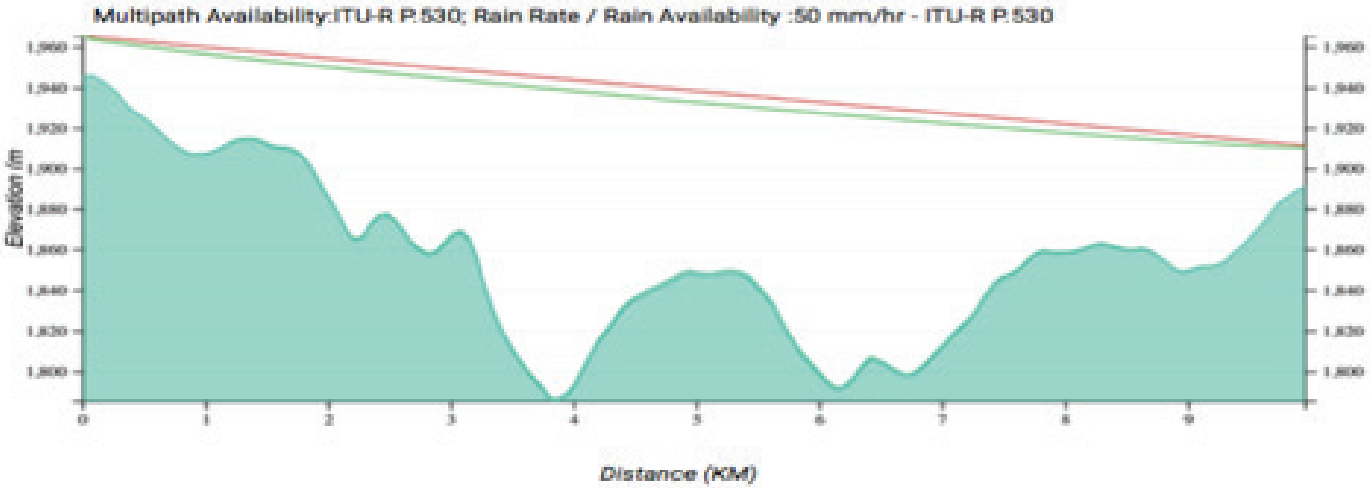
### SOCIOT

| | |
|---|---|
| Latitude | 0 21 45.70 S |
| Longitude | 35 10 19.09 E |
| Azimuth (°) | 157.88 |
| Elevation (m) | 1945.6 |
| Antennas CL (m) | 20 |

**F = 14875 MHZ**
**K = 1.33**
**%F1 = 60**

### CHEROMIT

| | |
|---|---|
| Latitude | 0 26 47.69 S |
| Longitude | 35 12 21.82 E |
| Azimuth (°) | 337.88 |
| Elevation (m) | 1891.418 |
| Antennas CL (m) | 20 |



## SUMMARY AND CONCLUSIONS

The multi-band link trial demonstrated the value that Multi-Band links can bring to operators who are subject to both intense capacity pressures in their network and high spectrum fees for microwave bands.

In the case of Safaricom, they will be able to substitute microwave links with Aviat WTM 4800 Multi-Band to extend ultra-high capacities of up to 10 Gbps over link distances of 10 km. In addition, they will drastically reduce the spectrum fees by up to $30,000 for each 2 Gbps link deployed, and even more, for higher capacities, compared to using regular microwave bands.

Aviat's WTM 4800 one-box Multi-Band solution also enables Safaricom to take advantage of the most compact and easy to deploy solution currently on the market, leading to additional savings of shipping, installation, maintenance, operations, and tower/site-related costs.

# TOO GOOD TO BE TRUE?
# IT'S NOT!

Aviat has the only single-box multi-band solution on the market, which can lower your total spectrum costs and TCO.

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