

## Background

Altai was recently invited by a telecom operator in Asia to conduct a trial at one of its sites near the ferris wheel and a comparison was done to assess the performance between Altai's Super WiFi solution and its existing AP solution.



## Challenges

Existing APs are installed at the center of the wheel but the throughput and signal strength are far below customer expectations.

The major challenges of this deployment are the WiFi signals being blocked by the ferris wheel cabins as well as the problems of co-channel and adjacent channel interference. WiFi roaming is another issue since the client devices cannot roam seamlessly from one AP to another.

## Test Setup

<b>Clients:</b>	(1) Laptop with TP-Link (TL-WN821N) USB Adapter (2x2 Client) (2) Nexus 5 Android Phone (1x1 Client)
<b>Test Software Tool:</b>	(1) Iperf for Throughput Test (2) inSSIDer for Signal Strength Measurement (3) Ping Tools for Network Connectivity Measurement
<b>Equipment Set Up</b>	<ul style="list-style-type: none"> <li>One Altai A8n is installed on the ground level facing the ferris wheel</li> <li>Antennas are mounted on two tripods, two on each tripod</li> <li>The distance between A8n and ferris wheel is around 80m</li> </ul>

## Test Results

In order to overcome these problems, one Altai A8n was installed at the ground level facing the wheel with all antennas tilting upward so that the signal strength could be significantly improved. The unique flexibility of the antenna alignment allowed optimal coverage.

Signal strength above -70dBm of was recorded over one complete revolution of the wheel while an average of 10Mbps throughput was reached during the test. Furthermore, no session discontinuity was observed.

## WiFi Performance Comparison

Test Item	A8n Solution	Existing AP
1 Number of AP	1	5
2 DL Throughput (Mbps)	22.1 (avg. out of one revolution with Iperf backend server)	10.9 at Position A; 20 at Position B (with speedtest.net servers)
3 UL Throughput (Mbps)	11.83 (avg. out of one revolution with Iperf backend server)	0 at Position A; 4.32 at Position B (with speedtest.net servers)
4 Session Continuity	0% packet loss	10% packet loss

## Conclusion

From the throughput, signal strength and session continuity, the overall performance of the Altai A8n was superior to the existing APs.

Altai's patented smart antenna technology tackled the problems of signal blocked and channel interference while maintaining strong up and downlink connections. Furthermore, only one A8n was installed for the trial to provide full WiFi coverage while the existing solution required five APs. In term of performance and cost efficiency, Altai's A8n performed significantly better than the existing APs.

With Altai Super WiFi Solution, the ferris wheel passengers can take a selfie while enjoying the panoramic view of the city and immediately upload to their social network seamlessly.

## Altai at a Glance

- Founded in 2006
- Headquarters in Hong Kong
- Distribution network in reaching 100 countries
- Patented smart antenna technology enabling 10X better coverage & capacity than standard AP
- Complete portfolio of indoor and outdoor products for carriers, WISPs, and enterprises
- Main market applications are mobile data offload, wireless broadband, WLAN access in private networks, and wireless backhaul

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