5G AX1200 for OW-450 (2N18) with built-in 5GHz Patch Antenna (18dBi) 2KM Distance PtP Throughput Test Report

1. Test Product model.

2. Introduction

The purpose of this test is to determine the average throughput and signal stability of OW-450 (2N18) with built-in 5GHz Patch Antenna (18dBi) via the Radio 1 (5G) AX1200 at a distance of 2km. This test specifically measures point-to-point WDS connections established using Cerio's CenOS 5.0 software core. The test was conducted between two OW-450 (2N18) units paired for 802.11ax operation.

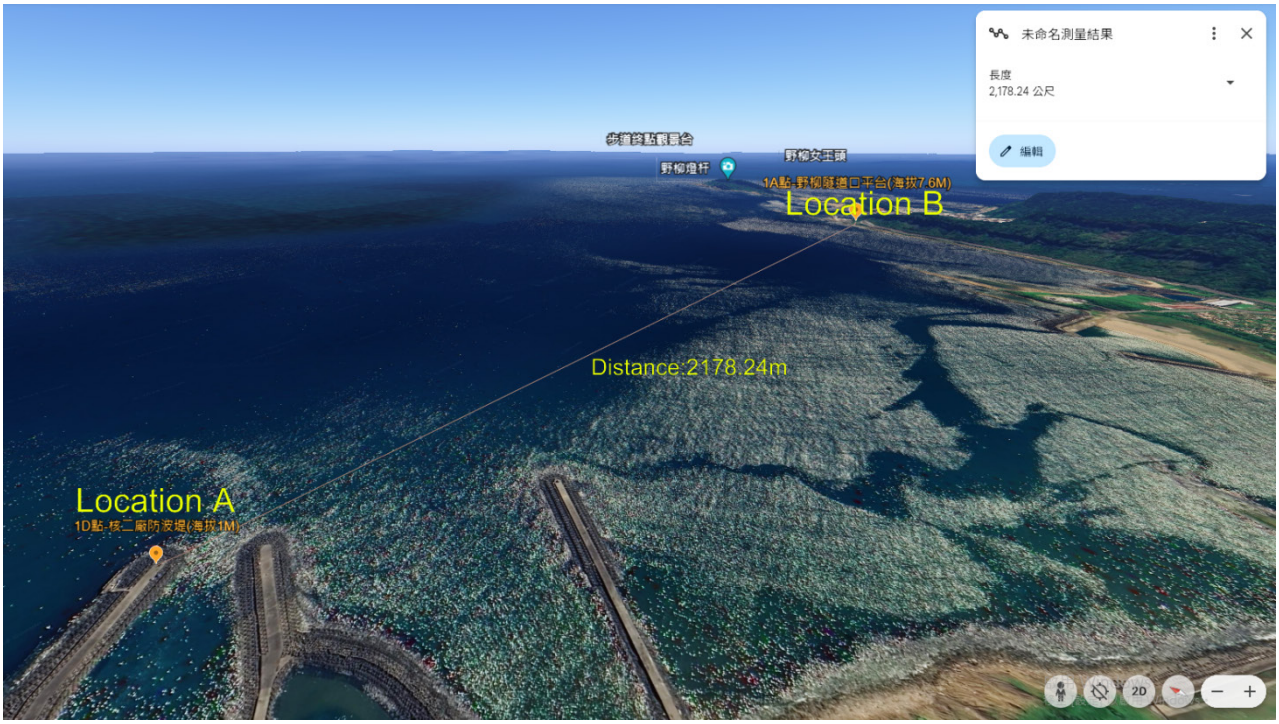
3. Test Date and Personnel

Date: 2025.6.24				
Tester				
6/24	06>4	06.24	06.24	6.24
Ky	Kevin	MARK	Jeff	Eric

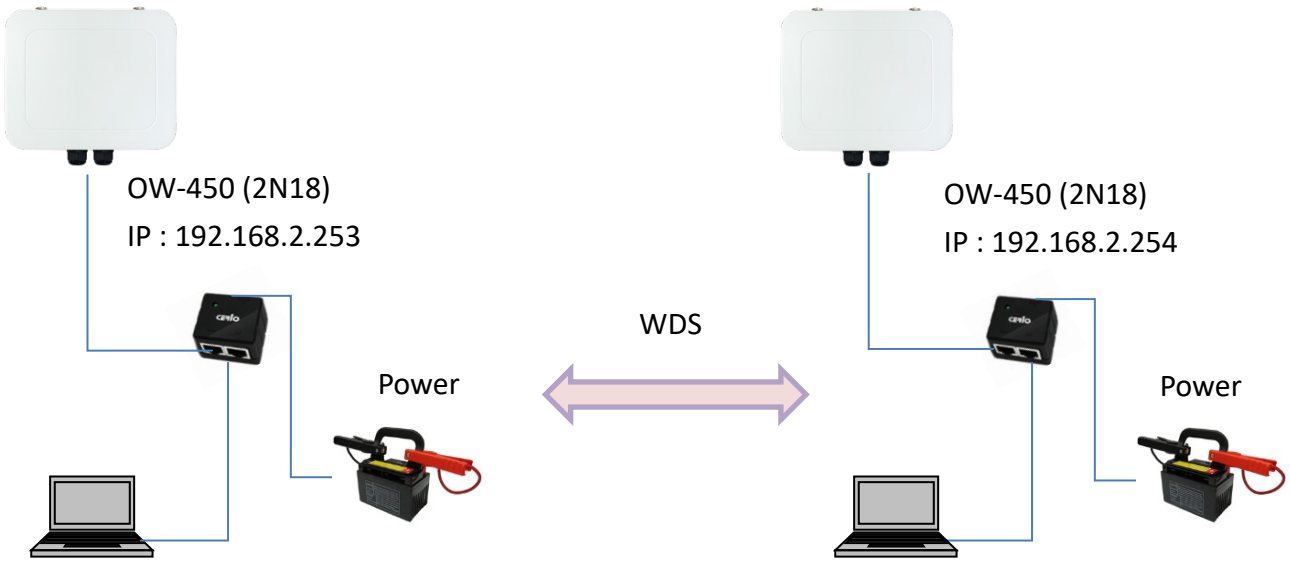
4. Test Environment

Location A: Second nuclear power plant breakwater.
Location B: Yehliu Tunnel entrance platform.

The distance from Location A to Location B is roughly 2178.24m, determined by Google Earth.

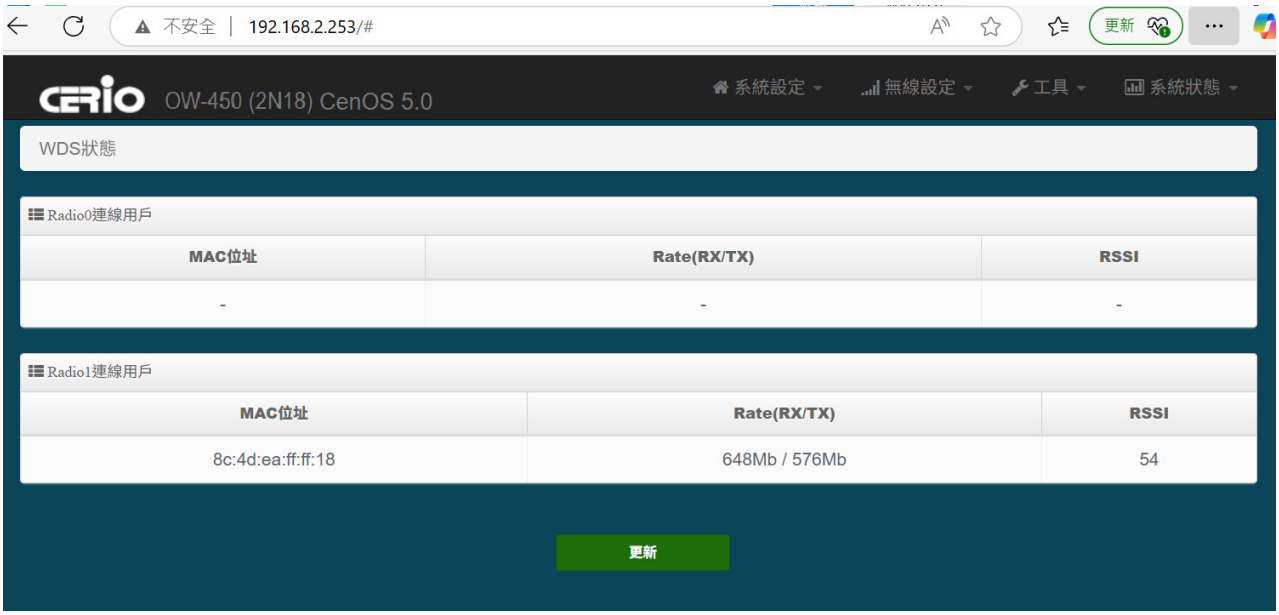


5. System Network Configuration

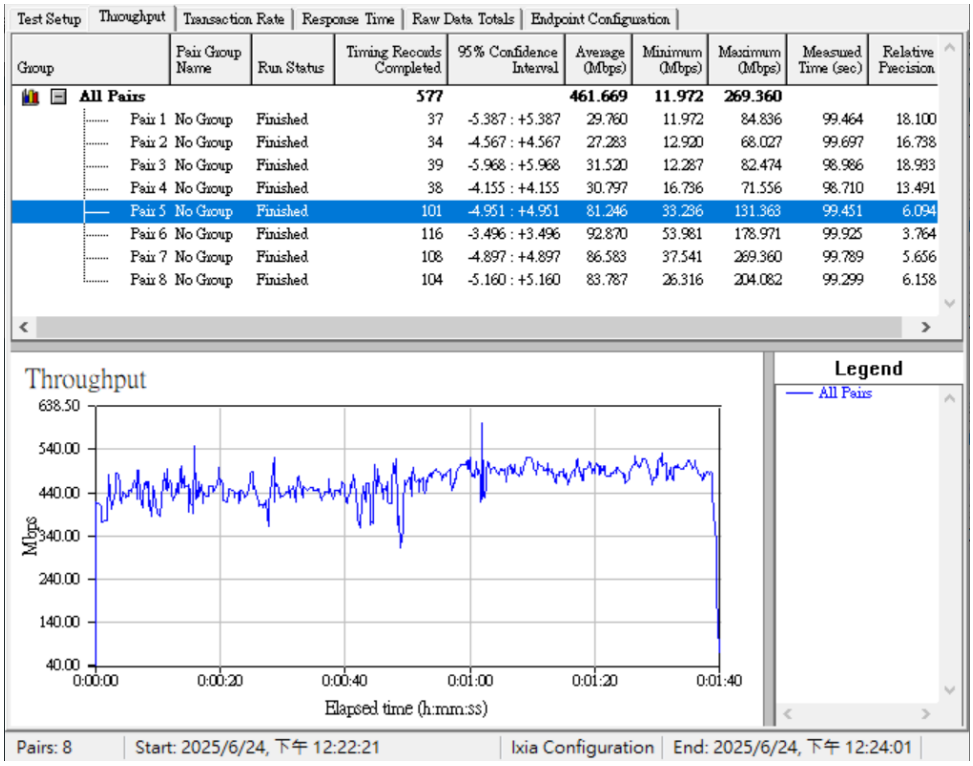


6. OW-450 (2N18) UI Screen

Location B：MAC Address and WDS



Band Mode	Channel	Throughput	Antenna
802.11ax	60	461.669Mbps	Built-in 5GHz-18dBi



5G1_18dBi_CH60

7. TEST Tools

Test Equipment			
Notebook	Lenovo ThinkPad E14 Gen6 Notebook x2	System OS	Windows 10 (x64)
Power (battery)	ALPHALINE MF85D23R x2		
Inverter	DC to AC 350W Inverter x2		
Tripod	2		
PoE Injector	Gigabit Injector (PoE-PE03GE-30W) x2		
NIC	LLANO USB3.0 2.5Gb RTL8152B NICx2		
RJ-45 Cables	Cat.5e x 4		
RF Cables	LLMR-NNP-1M x2		
Test product	1. OW-450 Series eXtreme High Power WiFi6 Dual-Radio Outdoor PoE Bridge/AP (+18dBi Patch ANT) x2		

Test Software and setting information	
Application tools	Chariot Version 6.7
Running time	100 sec
software	CenOS 5.0 Layer2 Softcore Core Firmware version : Pme-CPE-IPQ60XX-CERIO V0.0.2/20250205
Operation mode	Using Access Point mode with WDS function
Radio/Bandwidth / Channel	Radio1 (5G 2X2) / HE80/ CH60

8. On-site status

Location A: Second nuclear power plant breakwater. （ 核二廠消波提 ）

Location B: Yehliu Tunnel entrance platform. （ 野柳隧道口平台 ）

Conclusion

Verify the point-to-point transmission performance of our latest Cerio designed Dual-Radio outdoor wireless AP model: OW-450 (2N18) in Radio 1(5G) 5GHz at distance of 2 km. At this time, the antenna used for this test is a built-in patch antenna (18dBi) to verify its functionality.

Test results at a 2km distance are based on an OW-450 (2N18) outdoor AP (+18dBi Patch ANT). For antennas of the same specifications, built-in antennas offer higher transmission performance than external antennas. In long-distance scenarios, high-speed transmission rates are dependent on high-gain antennas, and antenna angle calibration is also required. As a result, the optimal and most efficient data transmission speed reaches 461.669Mbps. Our transmission performance is extremely stable, delivering significant throughput even over long distances.

Cerio Outdoor Wireless Testing has proven to be an invaluable reference tool for users who plan to deploy our products in a various outdoor environments. We have unparalleled experience in creating high-quality wireless networking hardware and software products, which enables us to consistently meet user needs and satisfy consumer demands through extensive knowledge and product design.